NAEB JOURNAL

MAY 1959

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ABOVE: Massachusetts school television class, Science, Grade Six: Eugene Gray (seated) prepares to introduce the subject of Sound. (See "The Massachusetts School Television Story," page 8.)

ON THE COVER: Physics studio teacher, Dr. Siegfreid Meyers, New York City, teaches three days a week in cooperation with classroom teachers in a "team-teaching" program. (See "Leased Time 'Pays Off' for Educational Television," page 12.)

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ETV: The Story up to Now

TV should improve learning, not merely save on space

By **Harold E. Wigren**

Educational Television Consultant for the N.E.A. An address to the Second Annual Radio-TV Conference, Boulder, Colorado, April, 1959.

It all began on Easter Sunday, 1952. That date—April 13, 1952—may go down in the annals of American education as the date on which a new era of educational opportunity was opened to the American people. It was then that it was announced that the Federal Communications Commission had assigned television channels to 242 (now 257) American communities exclusively for educational use. "Seeing is not always believing" because these non-commercial, educational allocations, representing 11.8% of the nation's available airways, would probably never have been made had it not been for the efforts of many educational groups and many individuals who dared to *believe* in the possibilities of educational television long before they could actually see clearly the road ahead.

I could have started my story a bit differently by saying, "Once upon a time—in 1946," because the idea behind educational reservations was actually *conceived* some six years earlier. It was then that a small but alert group of educators had a vision as to the possibility of what such reservations could do for the American people. They "built the fire," talked over their dream with other educators and interested citizens, spread the message, and before long the FCC was besieged with requests to set aside channels for education.

But applications for commercial

licenses were also growing by the score, and another problem—color television—was also on the horizon. The FCC was in a quandary. Soon it became quite evident that the whole assignment picture was in need of re-examination. Consequently, acting in its role as "guardian of American radio and television," the Commission in 1948 invoked its now famous "freeze" on all TV stations assignments until a thorough study could be made.

The "freeze" actually lasted three and a half years, until 1952. But this gave educators time to muster their forces. The NEA and the U. S. Office of Education filed petitions to reserve channels for education. The NAEB took the leadership role and sought, and obtained, the help of seven leading educational organizations in formulating strategy to preserve a share of the new channels for education. It called representatives from each of these seven organizations together in Washington, and at this meeting was formed the Joint Council on Educational Television, a liaison organization to represent education before the Commission, thus giving education a united front. JCET served several functions: (1) it represented legally all of American education; (2) it organized educators' efforts for the allocation of channels; (3) it pleaded education's case before the Commission; and (4) it served as a clearinghouse of information for all educational institutions planning to file brochures with the Commission in support of the reservation of educational channels in their localities.

After holding hearings on educational reservations for three months, the Commission made a tentative allocation in March, 1951, proposing that 209 of the 1900 television frequencies then remaining be tentatively set aside for education. The purpose of this action was principally to obtain public reaction to the idea of educational allocations. Then came the great debate—the issue was discussed from coast to coast. Many felt that education should be given channels; many said "no"—it would be "a waste of precious spectrum space" because educators could not afford the channels or would not know what to do with them. The chairman of the FCC invited educators to respond immediately to the Commission's proposals by filing sworn statements indicating their intentions to utilize television in their educational program in the event the Commission decided to make the reservations permanent. Result: 838 schools, colleges, and organizations filed sworn statements that they would use television and presented plans showing *how* they would use it. Witnesses and representatives came from all over the nation for the Commission's hearings, presenting a most impressive case. Then the big news came—242 channels were set aside for education, but again with a time limit. The channels must be applied for by June 2, 1953, or they would be

lost forever to education and be assigned to commercial interests. This created a new furor and a new unit on the part of educators, who were up in arms. They argued that education could not organize so quickly; but they nevertheless redoubled their efforts.

From then on, in quick succession, these things happened:

1. JCET became a permanent organization, financed by the Fund for the Advancement of Education.

2. NAEB provided consultation services to schools on equipment and facilities.

3. JCET sponsored a programming conference at Pennsylvania State University for educational leaders, to acquaint them with television.

4. National Citizens Committee on Educational Television was formed in order to enlist a broad base of citizen support for educational television. It was composed largely of leading businessmen and other prominent citizens, and enlisted support of citizens in those communities which were granted channels for education. NCCET set up its own theory of community television—that airwaves belonged to the people—and emphasized informal adult education rather than formal education at elementary and high school levels. The idea was that television is a means of educating the masses and a way of building an informed citizenry as nothing else could do —a concept we may possibly have lost sight of in recent years.

5. In May, 1953, NCCET and JCET held their first national conference on educational television in Washington. They invited the members of the FCC, and progress reports were presented by representatives of many institutions planning to apply for channels. This was a smart move and the Commission members were impressed. Shortly thereafter, the FCC announced that channels would be continued temporarily and removed the deadline date. What a relief to educators. Another victory won!

6. On May 25, 1953, KUHT—University of Houston and the Houston Independent School District—went on the air to be the nation's number one educational television station.

7. Nearly a year later, April, 1954, Pittsburgh went on the air, followed closely by Madison, Wisconsin; San Francisco; Cincinnati; and St. Louis.

8. By 1955 the Fund for the Advancement of Education, already known for its interest in education, announced its intention of exploring television as a method of bringing the best teachers to more pupils. Its experiments in classroom television were stepped up in 1957 into a nation-wide experiment known as the National Program in the Use of Television in the Public Schools, involving 40,000 students in more than 200 elementary and secondary schools in 13 cities: Atlanta; Cincinnati; Dade County (Miami); Detroit; Jefferson County, Kentucky; Milwaukee; Nebraska; Norfolk; North Carolina; Oklahoma City;

Oklahoma State; Philadelphia; Wichita. It was announced last week that this project will soon expand to four more systems: Des Moines; Anaheim, California; Central Ohio; and Western Florida.

Box Score on Educational Television Stations

The number of educational television stations has steadily grown and the score changes almost monthly. At the last count, there were 42 educational television channels on the air, with 18 construction permits outstanding. Two cities—Pittsburgh and Oklahoma City—are now operating two stations each.

State Networks

At present there are four state educational television networks in operation, with a fifth possibility, I understand, in Oregon. These networks are; Florida (with five stations), Georgia (with three stations), Alabama (with three stations), and Oklahoma (with three stations).

National Educational Television and Radio Center

One of the most influential organizations connected with the educational television movement is the National Educational Television and Radio Center, whose headquarters office was formerly in Ann Arbor, but as of April second is at 10 Columbus Circle, New York City. The Center, now recognized as "the network outlet for educational stations," was started in Ann Arbor, Michigan, in August, 1953, by a grant from the Fund for the Advancement of Education. Realizing that it is unlikely that any educational station can do the total programming job by itself because of insufficient resources, the Center has developed an outstanding program service to educational television stations, whereby programs are distributed to local communities and exchanged between one educational television station and another. This has proved to be a life-saver for educational television. Mr. Jack White, president of NET, predicted in Washington recently that within five years the Center would be recognized as "the fourth major TV network in this country," ranking along with NBC, CBS, and ABC. The Center will undoubtedly play a major leadership role in the days ahead for educational television in the nation.

Base of Operations of Educational Stations

There is actually no such thing as a "typical" educational television station. Each station reflects the community it serves. Some are on the air for only a few hours, while one programs 80 hours weekly. Some are large; some are small. Some are operated by colleges or universities, some by public school systems, some by communities—by ETV Authorities set up on a cooperative basis among the institutions within the community. There is no standardization. This makes for strength because each can find its own level.

Why Educational Television Stations?

What purpose do educational

Continued on page 44

Does Commercial TV Deserve Criticism?

Robert W. Sarnoff, Chairman of the Board of NBC, recently urged the broadcasting industry to undertake a campaign to counteract the growing amount of unfriendly comment about current television programs. This proposal constituted his keynote address to the National Association of Broadcasters on March 16, 1959.

The core of his proposal was that the broadcasters should initiate an industry-wide information campaign, to develop a clearer understanding of broadcasting's function and contributions. Mr. Sarnoff suggested three steps in this process: "1. By defining what we are and what we believe in, as an industry; 2. By ourselves understanding — so that we can help others understand — the nature and consequences of the criticism levelled against us; and 3. By considering steps to meet it on an organized and comprehensive basis."

Space does not permit the summarization of Mr. Sarnoff's entire presentation. Many might, of course, take issue with others of his statements, in addition to those to which the writer makes reference.

In discussing the first step, Mr. Sarnoff enumerates five fundamentals of belief. First and most important, he states, is that "Broadcasting, as a mass medium, best serves the public interest through programming which meets the desires and interests of the majority of people." His second fundamental is that "Broadcasting assumes a secondary function of programming for minority tastes and interests, and by doing so, offers the majority continuing opportunity to absorb new interests."

Does it not seem strange that the head of the network presently pioneering with such marked success in educational broadcasting through the presentation of "Continental Classroom" fails to single out the promotion of learning as a fundamental obligation of telecasters? One wonders where he rates education among society's objectives.

Interestingly enough a representative of the often-criticized advertising industry, rather than a broadcaster, drew to public attention the educational obligations of television. Prime nighttime TV,

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The Massachusetts School Television Story

Bay State educators develop the "21 Inch Classroom"

By **Edward R. Kupperstein**

Massachusetts Department of Education

One year ago this spring, after a long period of preparation, in-school television in Massachusetts became a reality. During its first year of existence, the history of the unique Bay State project has been one of growth — growth in the number of participating communities and in the variety of subject areas explored. But the real measure of success in this new instructional medium has been the overwhelming enthusiastic reception accorded it by classroom teachers as well as school administrators throughout eastern Massachusetts.

The group of programs presently supplementing elementary education in over a hundred cities and towns represents the end product of a co-operative effort in involving countless agencies and individuals. The great number of participants included in the Massachusetts project has necessitated, from its very beginning, the establishment of a strong system of co-ordination. As in-school television has developed, specific functions have been divided among three major administrative groups. The Eastern Massachusetts Council for School Television, representative body of all the contributing educational agencies, acts through its Administrative and Operations Committee to establish program policies; the Massachusetts Executive Committee for School Television, appointed by the State Board of Education under the provisions of Chapter 709, Acts of 1957, is the legal administrative agent for all funds appropriated for school television purposes within the Commonwealth; WGBH-TV, Boston's educational Channel Two, is the production medium through which the theoretical advantages of in-school television have come actualities.

Chapter 709, Acts of 1957: AN ACT PROVIDING THAT CITIES AND TOWNS MAY CONTRIBUTE TO THE FINANCING OF EDUCATIONAL TELEVISION PROGRAMS FROM FUNDS APPROPRIATED FOR SCHOOL PURPOSES.

The course of study in elementary and high schools may include instruction by means of educational programs broadcast through the facilities of television stations. The cost of such programs may be shared by cities and towns within viewing range of such television stations and the school committee of each such city or town may include within its budget such funds not to exceed one dollar per pupil enrolled in public elementary and high schools in such city or town, for the payment thereof as it may deem advisable. The board of education with the advice of the commissioner shall appoint an executive committee to co-ordinate and administer these programs.

Efforts directed toward the present smooth operation of the in-school television project began long before the first program was telecast. Early in 1957, superintendents of schools from the Greater Boston area, under the leadership of Mrs. Grace C. Whitmore and a subcommittee of the Massachusetts Association of School Committees, began a series of meetings out of which was to grow the Eastern Massachusetts Council, and, eventually, the present telecast. But before these school administrators could act, a legal basis for the new kind of instruction had to be established.

Heading the persistent drive for enabling legislation was James D. McCarthy, a Cambridge elementary school teacher. The hard-fought campaign culminated on September 9, when Governor Foster Furcolo signed into law Chapter 709 of the Acts of 1957. Ninety days later, when the legislation became effective, the stage was set for in-school television in eastern Massachusetts.

The wait for appropriate legislation was only one of the problems that beset the mere handful of visionary educators concerned with the future of school television. They had to justify, for themselves and for the others whom they hoped to attract to the project, the use of television in the classroom. Using every available resource, they had to establish criteria to govern each action of the school television infant.

Naturally, the primary concern of the educators involved in the organization of the project was the utilization of the programs in schools throughout the Commonwealth. Each of the six current in-school television series has been carefully chosen to fill a certain specific need in the elementary curriculum. The selection of subject areas and of television teachers is the responsibility of an Op-

erations Committee of elementary education supervisors drawn from the participating communities. As is true of any other teaching tool, this new audio-visual aid depends upon the individual teacher for its integration with classroom work. Since no two teachers conduct classes in precisely the same manner, the integration of television instruction differs in each classroom.

The decision to telecast programs on the elementary school level came early in the policy deliberations. The Eastern Massachusetts Council reasoned that elementary classrooms had the necessary flexible schedules and variety of subject areas, and also the greatest need for supplementary material. The programs were to be designed to help the elementary teacher meet the problem of teaching adequately many different subjects in the course of a school week. The television instructor, with greater resources at his disposal and with much more time to devote to the preparation of a single lesson, could present material that the overburdened classroom teacher could not.

Shortly after the beginning of 1958, plans were formulated for the first in-school television series. The subject area for this "pilot course," chosen months before, was sixth-grade physical science. Two instructors were selected: Norman Harris, educational director of the Museum of Science in Boston, and Eugene Gray of the Newton Public Schools, who had recently completed a training course in instructional television techniques.

Each school system interested in the programs appointed a coordinator through whom information about in-school television could be channeled to classroom teachers. This representative would also be the means by which the producers of the programs could determine the effectiveness of their efforts. The evaluation of these first few programs was to be of inestimable value in the production of the future series in the expanded project.

In order to permit the classroom teachers to prepare a complete lesson, study guides were developed. These guides outlined not only the content of each program, but also a number of suggested activities for use before and after each telecast. Elementary teachers could, by judicious use of this information, integrate the programs into lesson plans on each subject presented.

One more problem yet remained before the first telecast could be transmitted. The Massachusetts Executive Committee for School Television had assumed the responsibility of collecting from the participating communities their individual shares of the school television enterprise cost, at the established rate of twenty-five cents per pupil. The success or failure of the project was dependent on the ability of different types of educational agencies to associate voluntarily in a large-scale financial undertaking.

The first signs were encourag-

ing: several public school systems in the Greater Boston area pledged their support. One by one, cities and towns began to join in the project; it was soon apparent that the months of hard work in promoting, organizing, and producing the programs had not been in vain.

On March 28, 1958, the first telecast of the "21 Inch Classroom" was viewed by educational administrators in an estimated seventy-five cities and towns in eastern Massachusetts. Most of these viewers were curious, but noncommittal. However, the television committee had wisely distributed, to all the school systems indicating an interest in possible future participation, sample teaching guides for this first eight program series. During this physical science series, many school systems decided to participate financially.

By means of postal card reports submitted by classroom teachers, each program in the series could be evaluated before the next was telecast. This critique allowed Michael J. Ambrosino, Executive Producer of School Programs for WGBH-TV, to adjust the following presentation, in the nature of an experiment. The improvement of successive programs was a fact established by the increasing number of favorable comments from classroom teachers.

If there had been any doubt about the "21 Inch Classroom" in the minds of school officials in eastern Massachusetts, the eminently successful "pilot series" in the spring of 1958 dispelled it. During the following summer, as the programs for the fall were being developed, one progressive school system after another joined the in-school television project. Towns on the fringe of WGBH-TV's primary viewing area—towns in another state—private schools—even two of the state's correctional institutions became part of this united effort to improve classroom instruction. By the end of the year, seventy-five educational agencies, representing a potential audience of about 400,000 pupils, were contributing members.

Under the direction of Kelsey B. Sweatt, Co-ordinating Secretary of the Massachusetts Executive Committee for School Television the communications center for the in-school television project was established in the Office of Audio-Visual Services, State Department of Education. Through this office, the local television co-ordinators are kept informed of new developments in the "21 Inch Classroom," countless requests for information are answered, and the financial details of the project are administered. Perhaps the most popular of the informational materials released by the Audio-Visual Office is a "Guide to Television Installation" which outlines recommendations for television set specification, placement, utilization, etc.

One of the problems which has beset every participating educational agency has been the acquisition of television receivers. The

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Leased Time "Pays Off" for Educational Television

New York educators lease commercial station's facilities

By **Francis E. Almstead**

Special Consultant on Educational Television, Division of Educational Communications, New York State Education Department

Because of mounting pressures, the business of educating the youth of this nation is becoming more complex and more difficult to administer. Some of these conditions result from an expanding birth rate, the lengthening of the period of schooling, extensions of the fields of knowledge, and a shrinking world. It has been estimated that school population will increase in New York State during the next eight years by one million. During this period New York State will need to increase its teaching manpower by 35,000. If the number of replacements is added to this figure, education will be required to recruit an estimated 105,000 beginning teachers. Obviously, this condition will place a great strain on the experienced teachers who will be looked to for maintaining the desired standard of education in public schools. The burden of improving instruction will grow during the next decade because of expanding fields of knowledge, especially in mathematics, sciences and citizenship education. The burden, likewise, will be increased for the learner. Therefore, as educators "tool up" for the complex years ahead, it is essential that they explore thoughtfully and professionally ways of conserving manpower and improving the effectiveness of the teaching-learning process. It will be necessary to consider well the use of mechanical, electronic, and optical devices modern technology has made available during recent years. These de-

vices, if integrated into the teaching process, will make it possible for education to maintain full opportunities for learning in the face of an inevitable teacher shortage.

The medium of television may be expected to play a very important role in helping to solve some of education's building and manpower problems. Yet it should not be thought of as a panacea, but as a means of communication for:

1. *instruction* to small groups of pupils in several rooms at several schools simultaneously, a process which is impractical by other means. In communities where cost of education has become a burden, it may be difficult for Boards of Education to employ teachers for special subjects. Teachers for these special subjects, particularly in the elementary schools, can serve by television the areas where the teachers are lacking.

2. *subject matter* which inexperienced teachers can use with their classes. In the upper grades, particularly, inexperienced teachers need help in developing excellence of performance and competency in subject matter. While a new teacher is growing professionally, some pupils may be handicapped. Television can make it possible for an experienced teacher to present authentic subject matter and skillful demonstrations to a large, widespread audience. The inexperienced teacher in the viewing room is responsible for pupil success. His pupils' learning during the periods when lessons are not being broadcast is reinforced by the classroom sessions. This team relation assures excellent learning conditions for all pupils and offers an opportunity to a new teacher for professional growth.

3. *special or advanced content* appropriate for a limited number of pupils per school where the cost of instruction for one group would be prohibitive. In almost every school there are a few pupils who have exceptional ability. Schools, especially the smaller ones, may not be able to employ a diversified staff to satisfy the needs of their gifted pupils.

Last year the Regents of the University of the State of New York, determined to test the worth of television in meeting some of the challenges facing public education, authorized a broadcast project in educational television. Broadcasting began September 22, 1958, on Channel 11. The broadcast schedule was made up of lessons and experiences which could be used in testing the theories developed earlier.

The purpose of the project was to support public education with regular lessons in Spanish, mathematics, science, citizenship education, English, music, and arts and crafts. Special programs and in-service training courses were also included. While the broadcasts were designed to follow state syllabuses as well as New York City courses of study, and were intended for in-school viewing, the public has developed a great deal of interest in all of the courses.

Since the opening day, the viewing audience has grown steadily. Studio teachers have received 20,000 letters and cards from home viewers. The pre-school program, FUN AT ONE, recently received 1200 letters in one week. This program is competing for first-place rating with a CBS program, OUR MISS BROOKS.

"I am one of the many voices crying in the wilderness of commercial television." ". . . a housewife hungry for education." "My day is planned around each program." "Whatever prompted you to give the public such an advantage?" "Dishes pile up . . . dust threatens to choke us . . ."

And so the letters from enthusiastic viewers poured in, each one excited at the prospect of what educational television could do for him and his children.

The growth of in-school viewing has grown steadily, too, and is shown by the data in chart 1.

CHART 1

ANALYSIS OF IN-SCHOOL TELEVISION VIEWING

FOR

REGENTS EDUCATIONAL TELEVISION PROJECT CHANNEL 11

February 24, 1959

- - - - *REPORTS AS OF* - - - - -

	Sept 1958	Nov. 1959	Jan. 1959	Feb. 1959
Television receivers	200	506	1500	1,742
No. of schools with television receivers	96	230	609	756
No. of classrooms with television receivers	916	2,452	6,326	7,276
Estimated number of pupils viewing television	27,480	73,560	186,780	218,280
No. of sets school districts plan to order				576*

*Survey not yet completed

Photograph by THE NEW YORK TIMES

Richard Berg of Yonkers, studio music teacher, gives instruction on the playing of various instruments to elementary students.

The complexity of this operation has given rise to certain anticipated difficulties which, through lack of time and manpower, prevent fuller use of educational television by the schools. Several of these problems are: (1) the inability of school districts to equip their schools with television receivers; (2) the lack of proper study guides; (3) inadequate communications to classroom teachers prior to the beginning of the broadcast; and (4) inadequate workshops for studio and classroom teachers. As these problems are solved, the utilization at the classroom level will increase.

During this year's operation, the State Education Department is having kinescope recordings made of a number of the courses. These are Spanish, elementary school science, algebra, twelfth grade English, twelfth grade citizenship education, science for teachers, and mathematics for teachers. The lat-

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Educational Television in the Schools of Georgia

The goal: every school in the state within reach of an ETV station

By **Claude Purcell**

State Superintendent of Schools, Atlanta, Georgia. An address to the Region II Conference of the NAEB in Atlanta, April, 1959.

Educational television is of immediate concern in the State of Georgia. We are seriously studying the possibility of developing wide use of this facility as a means of improving education.

At the present time there are three groups of people who are studying the potentials of educational television. The Georgia General Assembly established a committee to study television. The State Board of Education has established a three-member committee to study and map the developments in this area. Dr. Doak Campbell is also directing a study, which will be completed and published by July 1. The State Department of Education has employed an engineering firm to survey the state for the purpose of establishing a network. We want to see every school within reach of a broadcasting station, and we want as much of the network as possible on low-frequency channels.

I think you already know that the Atlanta Public Schools maintain a program of educational television of considerable proportions. The Atlanta school system is participating in an *experimental* study of the effectiveness of educational television.

The University of Georgia through its Center for Continuing Education has provided facilities for telecasting as soon as a tower and other facilities can be built. It already has a studio and personnel, which are being used in closed-circuit television for a number of selected situations.

The State Department of Education and Fulton County School System have made provisions for an experiment in closed-circuit television in the Conley Hills Schools. Television in this school has been in regular use for some time.

Since 1952, the State Department of Education and several local school systems have been using free time over commercial TV stations in a variety of ways. These programs over commercial stations have been beamed to the parents, particularly in regard to some of the current developments in education, for example, the age at which children should be admitted to kindergarten and first grade. These programs have also been used to interpret the school program to the general public, and to provide information regarding the work of various agencies of the State. ——So much for things that are now going on in the field of educational television in Georgia.

Now I would like to discuss our plans for the future. We anticipate a state network which will provide television instruction for all the schools. The network, under the direction of the State Department of Education, will utilize any existing facilities and will develop other facilities as rapidly as conditions will permit. Pending the development of the network, a number of activities are being planned, and will be carried forward. These include the selection of courses to be presented by television, the selection and training of teachers, and the development of curriculum materials.

It also involves a well-planned program for preparation of teachers, principals and superintendents within the first telecast area. This readiness program will help teachers to be prepared for the best possible use of the programs to be telecast. This readiness program, we think, is extremely important.

The *immediate* plans for plant facilities include:

1. Contractual arrangement with the University of Georgia to use its facility in the network and to begin our telecast over its Channel 8 station about the middle of next school year.

2. The conversion of an existing building here in Atlanta into a central studio for the state network. Recently the Department acquired 19 acres of land here in Atlanta, which was formerly used as a farmers' market. The buildings and land are valued at about two million dollars. One of the buildings is adaptable to a television studio. The conversion of this building will involve providing this central studio with all necessary equipment, including video tape machines.

3. The construction of a broadcasting station for Southwest Georgia, using Channel 8 in that area. Last week the FCC granted the State Department of Education

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Projects and Products

a monthly column

by

Philip Lewis

Director, Bureau of Instruction Materials,
Board of Education, Chicago

UNIQUE PROPOSAL TO PROVIDE ETV COVERAGE FOR MICHIGAN AT $500,000 EQUIPMENT COST

Adler Electronics, Inc. presented a proposal to the Conference on Educational Television meeting in New York in January of this year that has stimulated a great deal of interest among educators and broadcasters alike. Previous plans to provide broadcast TV coverage of entire state areas involved multi-million dollar investments. The Adler approach is recommended as a low-cost answer to ETV's financial problem.

In essence the proposal involves the use of 10 watt and 100 watt equipment employed as:

1. TRANSLATORS to pick up signals from an originating station and convert it to a UHF channel for rebroadcasting to areas not adequately serviced by the originating station

2. REPEATERS where translators repeat signals received from other translators and thus service intermediate areas as well as relay signals to other translators along a predetermined route

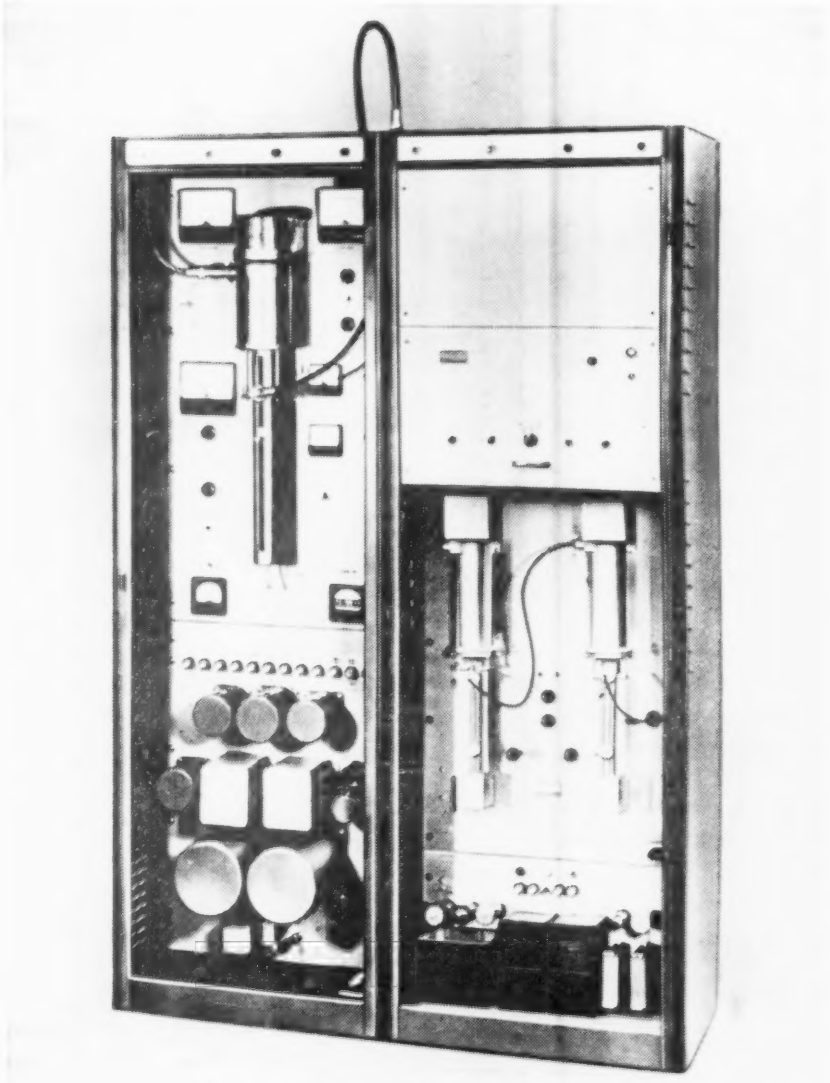
3. MICROWAVE RELAYS as inter-city or inter-area links for subsequent re-broadcast.

The equipment involved is relatively simple and compact. Arrangements have been made to provide NAEB members with copies of detailed proposals free of charge upon request. These reprints involve the following:

"A Proposed Educational Television Network for the State of Michigan"

"Rebroadcast Systems for Pennsylvania"

"Multichannel Educational Broadcasting System for Washington County Schools, Hagerstown, Maryland"

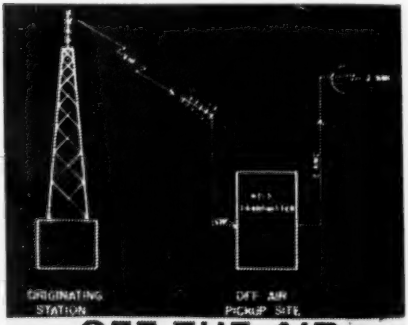


"Low Cost 100 Watt UHF Broadcast System"

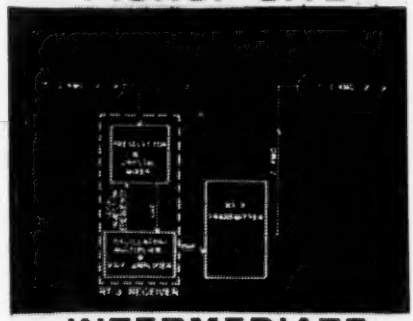
"TV Rebroadcast and Relay Systems, State Teachers College

at Frostburg, Maryland."

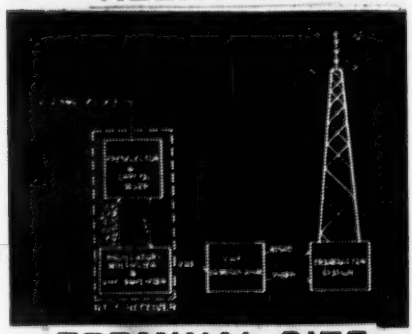
Address requests to Mr. Emanuel Strunin, Adler Electronics, Inc., One Le Fevre Lane, New Rochelle, New York.



OFF-THE-AIR PICKUP SITE



INTERMEDIATE RELAY SITE



TERMINAL SITE

THE RIGHT AND THE WRONG WAY TO WATCH TELEVISION

Dr. Robert J. Beitel Jr., Chairman, Conservation of Vision Committee, Pennsylvania Academy of Ophthalmology and Otolaryngology, authored a concise and graphically illustrated presentation on this very vital subject. With the expansion of televiewing activities in the school as well as in the homes, it is a must that educators be in command of the facts in this connection. Such data will permit better planning in arranging set placement and adjusting the lighting environment. Reprints are available from Miss Liz Troughton, Promotion Manager Midwest Region TV Guide, 230 North Michigan Avenue, Chicago 1, Illinois.

NOISE MEASUREMENT

In all forms of broadcasting where audio is involved, ambient noises offer challenging if not serious problems. A booklet published this year by the General Radio Company, entitled "A Primer of Noise Measurement," contains interestingly written material on this subject and offers solutions to many common problems encountered in the broadcasting field. Single copy requests for this publication will be honored. Write to Mr. C. J. Lahanas, Assistant Advertising Manager, General Radio Company, 275 Massachusetts Avenue, Cambridge 39, Massachusetts.

Educational Radio's Influence

Is counting listeners' noses the best method of evaluation?

By **Ken Kager**

Operations Manager, Station KUOW-FM, Seattle, Washington

Background

The most commonly-used method of estimating the influence of the mass media is total audience — how many read, see, or listen to a specific channel or communicator? Serving this preoccupation with numbers are the commercial broadcasting rating services and their counterparts in other media.

Because most educational radio station managers do not feel that their success is measured by a rise or fall in ratings, they have traditionally not been overly-concerned with the will-o'-the-wisp of numbers. Yet all of them to do wish their stations to exercise an influential voice in their communities.

This article reports an exploratory study of the possibility that educational radio stations actually have more influence than estimates based solely upon number of listeners would imply. The study of an educational FM station audience used as a model the two-step (or multi-step) flow-of-communications theory.[1] The station was KUOW-FM, operated by the University of Washington in Seattle.

1. The two-step theory was first formally enunciated by Lazarsfeld, Berelson, and Gaudet in **The People's Choice** (1948). Summed up, the hypothesis is that many ideas flow from radio and print to **opinion leaders** and from them to the less-active segments of the population. Extensive subsequent research in the same area has somewhat modified, but generally strengthened, the theory. An important book, which served as a valuable guide in this study, is **Personal Influence: The Part Played by People in the Flow of Mass Communications**, by Elihu Katz and Paul Lazarsfeld (1955). Literature on the two-step flow was summarized by Elihu Katz in the Spring, 1957, "Public Opinion Quarterly."

It is granted that, in radio broadcasting, the number of listeners to any station is an important aspect of its influence. Yet number of listeners would be the *sole* criterion of influence only if: (1) radio listeners all *terminated the flow of communications* by neglecting to relay to others the information and ideas received from radio; (2) people were all equal in personal influence, so that it made no difference, from the standpoint of impact in the community, which individuals received a broadcast message.

The two-step flow-of-communications concept tells us that the first condition is not met, that effective communication by the mass media is also relayed by middlemen, the so-called opinion leaders, to other people.

The second condition scarcely needs examination. Quite apart from opinion leadership, it is recognized that, when it comes to getting things done, the higher status groups are better organized and more active in community affairs, with easier access to, and more influence upon, those who officially and unofficially control the community.

Thus the *composition* of a radio audience, as well as the size, is important in assessing the influence of any station. The ratio of active listeners, or "opinion leaders," to less-active listeners is important in measuring the *total penetration* of broadcast ideas. The power level where listeners and those influenced by listeners are located is important in gauging the ability of a station to achieve effective action.

Ken Kager

In this study of these two important facets of influence, the ratio of opinion leaders, or personal influentials, in the KUOW audience was measured and compared to the ratio in the audiences of other radio stations in the Seattle area. Then the personal prestige of the two groups was estimated and compared.

Method

Since studies have shown that there are very few "generalized" personal influentials (those active in a number of subject areas), any

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The Videotape Recorder

New device has many uses for educational television

By **Robert A. Miner**

Manager, Market Planning Department, the Ampex Corporation, Redwood City, California.

In April, 1956, a new and unexpected invention called a Videotape recorder suddenly captured headlines on newspaper front pages, throughout the nation. The influential New York Times, in its frontpage article, forecast that "electronic photography" would have implications far beyond the television service for which it had been invented. The excitement in the broadcast industry trade press was nothing less than tumultuous. What, exactly, then, was this new invention — the Videotape recorder — which had created such a stir?

In its simplest terms, the Videotape recorder is a device which records on a strip of magnetic tape the electrical signals which emerge from a television camera system, very much as the familiar audio tape recorder records on a narrow strip of magnetic tape the electrical signal which emerges from a microphone system. All the things which audio tape recording did for sound, the Videotape recorder is capable of doing for television: the machine will record both picture and sound, as it is being picked up in the studio, and immediately replay both picture and sound, without a trace of visible deterioration. Like an audio tape, a television tape recording can be erased, and a new recording placed on the same tape, over and over, as desired. Like an audio recorder, the Videotape recorder is push-button operated, and capable of full picture and sound

fidelity in the hands of a relatively inexperienced operator. (Maintenance on the Videotape recorder, like maintenance on all television equipment, naturally requires the services of a trained expert.) Like an audio tape, a television tape recording can be recorded on one machine and played back on another, or copies of the original tape can be made and played back on many other machines.

Physically, the Videotape recorder, as it is manufactured today, consists of a handsome console, a little bigger than a kitchen range, on which the tape is loaded and threaded, and on which are located the meters, dials, and push-buttons with which it is operated, and two cabinets of a size and type found throughout radio and television broadcasting which contain the electronics chassis that are used to amplify, modulate, and otherwise process the television signals.

In use, the Videtape recorder is a convenient high fidelity recorder and reproducer of television sound and pictures, and may accurately be regarded as the television counterpart of the professional high-fidelity sound tape recorder. It is not, of course, a sort of electrical counterpart of a moving-picture camera. Just as the recording of sound requires one or more microphones, artistically placed for best pick-up, Videotape recording requires one or more television cameras, artistically placed for best picture pick-up, and, of course, one or more microphones to pick up the sound which accompanies the picture. Just as good sound recordings are "monitored" by experts during the recording session, television tape recordings are monitored by skilled television directors and technicians, to insure good picture recording. The physical equipment required to make a television tape recording is exactly the same as that required to produce a good television broadcast — television camera, television cameraman, studio monitor, and skilled studio monitoring technicians — the difference being that the electrical signal which contains the picture information is fed through cables to the Videotape recorder, instead of being fed to a television transmitter. The Videotape recorder "remembers" every detail which is fed to it, and will replay, in electrical form, the information it has received through cables, over and over, as desired.

Videotape recording, thus, is a wholly new way of storing moving pictorial information, a memory for the television camera, which does not depend upon chemicals, which is capable of immediate replay, and whose medium can be erased and re-used many times over. In many ways, it is a supplement to motion picture photography, and in other ways, most of them in television, it is a replacement for photography. New functions, which never before could be performed, are now within reach through Videotape recording; some functions which photography has handled in the past can now be

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Education's Last Chance in Radio: FM

Educators must plan now for future effectiveness

A little over a year ago questionnaires were mailed to the managers of every educational FM radio station in the United States and Hawaii. The immediate purpose of this survey was to gather material for a thesis for a Master's Degree. A larger and more important objective was the illumination of an area of educational broadcasting whose past growth and future potential have tended to be overshadowed by the current interest in educational television. This survey seemed especially timely in view of the renascence of FM broadcasting evinced by increasing numbers of commercial FM stations and FM listeners across the country. Furthermore, the threat to educational FM channel reservations posed by an ever-growing demand for FM frequencies by police and fire departments, industry, and the military services needed to be pointed out to those who may have forgotten the fate of the educational AM stations of the 1930's.

By **Dick Stevens**

Assistant Program Director KFML AM-FM, Denver Colorado.

According to the March issue of the *NAEB Newsletter*, there are today 164 educational FM stations. Most of them have been established in the years since the end of World War II. With power outputs ranging from 10 to 300,000 watts, these stations operate, for the most part, in the 88 to 92 megacycle band reserved by the FCC exclusively for noncommercial educational broadcasting.

Who operates these stations?

What are their objectives and how are these objectives pursued? What sort of programs do they broadcast? Where do the stations fit into the organization of the institutions which operate them? Who establishes station objectives and policies? How large are their staffs and budgets? What are the problems of educational FM stations? These were some of the questions included in the survey. This report presents a digest of information supplied by the stations and by other sources, together with some conclusions by the writer.

Of the 159 questionnaires mailed out in February, 1958, seventy-six percent were returned. This response represented 114 educational FM stations (licensed to 111 institutions and organizations) which were in operation at that time. Of this number, forty-six were licensed to universities; twenty-four to colleges; thirty-five to public schools; four to educational foundations; two to a public library; two to trade schools; and one to a private school.

The objectives of these stations were as varied as the kinds of institutions and organizations they represented. Overall, of course, a principal aim was the presentation of radio programs of educational, cultural, and informational value. More specifically, the public school stations had as their primary objective the supplementing of classroom instruction. The college, university, and foundation stations directed their efforts toward the general advancement of education, the offering of cultural materials, and the extension of the public relations programs of their institutions. Additional objectives of the college, university, and public school stations were the provision of vocational training in radio and the offering of an extracurricular activity for students.

What methods were employed to meet these objectives? In the public school stations, they included the correlation of program content with the school curriculum (reported by 74 per cent of the schools); the preparation of program utilization guides for teachers (in 77 per cent of the schools); and the offering of a variety of subject matter for all grades from kindergarten through high school (in 69 per cent of the schools). The objectives of generally advancing education, affording cultural listening opportunities, and promoting public relations were pursued through the broadcasting of a variety of programs designed to further these aims, supplemented by the publication of program guides for listeners (reported by 84 per cent of the universities and 67 per cent of the colleges). With the exception of the news and popular music, many of the programs were of a type seldom heard on most commercial stations. Concert music, for example, was carried by 89 per cent of the educational FM stations; interviews, by 81 per cent; drama, by 79 per cent; news, by 77 per cent; discussions, by 76

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Book Review

Television, Education, and the Armed Forces, by M. Robert Allen. The Quartermaster Training Command, Fort Lee, Virginia. December, 1958. 142 pages.

To quote the author, "Television is a fact of our everyday lives. The question is not whether it is 'good or bad' but instead, 'how can it best be used?'" The purpose of this report is not to confirm or deny the information and findings previously reported concerning the values or potentials of ETV. Instead, the author comments on the utilization of television for education and training by military and civilian educators in the United States and Europe. As the author repeatedly states, this report is subjective—it consists chiefly of his reactions to the current practices and products of ETV.

Concerning military uses of TV, he feels that television is a vital force in preparing troops and civilians to face the crises brought about by the current "cold" war or an all-out, shooting "hot" war. He suggests that we must provide individual and group training for the military and for civilians—both here and in the allied nations abroad. A master plan should be developed using the already established educational and military centers as "nerve centers," with television serving as the nerve system connecting these centers. This puts the teachers and educators in the position of "dendrites and synapses" of this nerve system. A breakdown in this area can lead to faulty communication, which too often is blamed on the system. As the author states, "Television is a mechanical thing, the effective instructional use of which depends upon the practicality and creativity of the person using it." The author makes further recommendations for the use of television by the military, but these have been omitted from this abstract for want of space. Attention has been given instead to the sections devoted to the non-military use of television and to television in Europe.

Television and Teaching

The author, citing the UNESCO view, feels that tele-

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NAEB Research Fact Sheets

Series 1: The Effectiveness of Television as a Teaching Tool

69. Final Report on the 1958 Summer Television Project: College-Preparatory English and Mathematics

The Chicago Undergraduate Division of the University of Illinois. By Kenneth H. Murphy. 61 pages.

The Chicago Undergraduate Division of the University of Illinois presented non-credit courses in English and mathematics during the summer of 1958. These courses were designed as aids to college course work and placement tests for recent high school graduates. The programs were presented over Channel 11, WTTW, the ETV station in Chicago.

Of the 731 students officially enrolled in the English course and the 622 enrolled in the math course, the majority were planning to enter college in the fall. However, a considerable segment of the students were enrolled solely for self-improvement.

The courses involved 33 half-hours of television classes with coordinated reading assignments and exercises to be worked and graded at home. A pre-test and post-test taken at home and graded by the University gave students and faculty an opportunity to evaluate progress made during the course. Personal conferences with the instructors were also arranged.

The results are quite clear-cut and brief. Generally, the college preparatory math course seems to have attracted an audience of the anticipated academic ability (that is, in need of remedial work) and to have produced positive changes in this group's understanding of and ability to apply basic mathematical concepts. In the English course, however, a much more able group than was anticipated seems to have enrolled. Little change was

noted from beginning to end of the course with regard to this group's ability to handle the English language correctly.

Of perhaps even more interest than the test results are the responses to a questionnaire mailed to all students enrolled in the courses. Only a third of the students returned these questionnaires and since this was a voluntary response, it seems likely that they represent the group most interested in the courses. Responses to some of the questions are listed below:

1. Over 90% felt that signs, charts, blackboard work, etc., used in the courses were helpful.
2. Slightly under a third rated television reception over Channel 11 as excellent and slightly over a third rated it as good during the courses.
3. About 60% preferred conventional classroom instruction to television instruction while 22% felt they were equal in quality.
4. Ninety-one percent of the students had never taken a course over television before; yet 87% said they would take courses of this type over television again.

Other college courses which students mentioned as courses they would like to see presented were chemistry, physics, biology, physical science, history, U.S. history, psychology, trigonometry, and languages, with Spanish being preferred.

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NAEB Research Fact Sheets

Series 1: The Effectiveness of Television as a Teaching Tool

71. Comparative Teaching Effectiveness of Radio and Television

By Lionel C. Barrow, Jr. and Bruce H. Westley, Audio-Visual Communication Review, Vol 7, No. 1, Winter 1959, pages 14-23.

The experiment reported in this article was designed to compare the relative effectiveness of equivalent radio and television versions of a series of background-of-the-news programs for grade school children. Some 228 sixth-graders took part in the experiment. Classroom groups were randomly divided and assigned to the radio or TV treatment. Both immediate and delayed recall were measured.

The results indicate that the TV group made significantly higher scores than the radio group on an immediate recall test of factual knowledge. The TV group's score on a delayed recall test six weeks after the last program was still higher than radio group but the difference was no longer significant. IQ was significantly related to scores on both the immediate and the delayed recall tests. A teacher-led discussion after the program but before the administration of the immediate recall test did not produce higher scores than absence of discussion before

the test. Thematic emphasis (defined as the number of words used to describe a theme) and method of presentation (defined in terms of the use or non-use in the TV versions of such visual aids as film clips and maps) were both significantly related to saliency (defined as frequency of first mentions in response to an open-end question).

JEANNIE DIETEMANN

Editor's note:

The NAEB Research Fact Sheets are arranged so that they may be removed from the *Journal* by pulling out from the center staples. Each fact sheet is so paginated that it may be individually separated from the others.

NAEB

Research
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Series IV: Audience Studies

26. New Developments in Audience Research Methods

By W. A. Belson. No. 77 in the Reprint Series of the Research Techniques Unit, London School of Economics and Political Science: (Originally appeared in The American Journal of Sociology, *Vol. LXIV, No. 2, 1958)*

Within the Audience Research Department of the BBC is a unit called "Project and Developments," which, in addition to other jobs, frequently is called upon to do planning studies or measure effects of programs. The methodology for these two tasks is described in detail in Dr. Belson's article.

Briefly, the planning studies consist of three broad processes:

1. Obtaining, at a testing center, as representative a sample as possible of the target audience. These subjects are usually obtained from the BBC's daily survey of listening and viewing.

2. Administering to them prepared tests under standardized conditions. The tests vary from the entirely subjective essay type through straight-forward questions calling for factual information to a process of getting group members to call out opinions on some issue and then having the whole group vote on them.

3. Using statistical methods to eliminate as much as possible of the bias or unrepresentativeness inherent in such a group, that is, to eliminate the irrelevant volunteer bias or that bias which is not predictive of whatever is being studied.

One weakness of this method is that it cannot function unless a good deal is known about the population distribution of a wide range of potential predictors or corrective criteria. The best line for development of this system would be to try to develop a range of criteria

which tend to recur as useful predictors—a concept of "general-purpose corrective criteria." Population distributions for these would then be developed and stored.

The method for measuring the effects of a television broadcast is called the "Stable-Correlate" technique. This is designed to eliminate all or most of that part of the difference in test score which arises between people who have or have not viewed a broadcast. It permits a measure of the effectiveness of the broadcast without the coloring influence of original, pre-broadcast differences. The adequacy of the correction procedure to allow for pre-broadcast differences depends on at least two things:

1. The characteristics in terms of which the adjustment or correction is made must not themselves be open to change by the program, e.g., age and social background. In other words, they must be stable as far as the broadcast's effects are concerned, i.e., Stable Correlates.

2. These characteristics must be fairly powerful predictors of test score, for upon their power depends the success of the corrective procedure.

Here, as in the planning studies, a need is felt for developing groups of general-purpose predictors and for learning which overlap and which do not. However, this method does allow the measurement of effect to be made without interfering in "the essentially complex sequence out of which 'effects' normally emerge."

JEANNIE DIETEMANN

Editor's Note:

This Fact Sheet was run in the April issue of the *Journal* as No. 20. We are reprinting it here with the correct number (26), and suggest that you simply remove the incorrectly numbered copy from your files and substitute this copy.

NAEB Research Fact Sheets

Series VI: Impact

13. The Effect of Television on Cinema Going

By W. A. Belson, No. 79 in the reprint series of the Research Technique Unit, London School of Economics and Political Science. (Originally published in Audio Visual Communication Review, *Vol. 6, No. 2, 1958)*

This particular study is only a part of a whole series of studies to determine what part TV plays in the various changes which have occurred in participation in leisure activities. In this case, movie attendance is examined, since one of the claims made following the spectacular rise of TV was that it produced a decline in movie attendance, i.e., as the percentage of people with television sets has gone up, movie admissions have gone down. The author suggests that rather than being a direct cause, television may be only one factor in the decline in movie attendance.

Information was gathered through a random survey in Greater London. Interviews were carried out during 1955. Data was analyzed by use of the author's Stable Correlate Method and showed the following results:

1. TV has reduced movie attendance of viewers by 33%.

2. TV has reduced strength of interest in movie-going by 21%.

3. Movie attendance is inversely proportional to length of set ownership up to four years. At this time recovery sets in, so that after five years of set ownership, the decrease in movie attendance stands at 30%. Interest in movie-going also is inversely proportional to length of television set ownership, with only very minor recovery occurring after four years.

4. In the framework of the general study, movie attendance was affected by television to a far greater extent than other interests studied (playing cards, visiting people, photography, etc.) with far less eventual recovery.

The author notes in closing that the full impact of television on British movie-going is yet to be felt, since these results pertain only to the effect of the BBC and do not include the commercial ITA. Also, television may be considered as a contribution to the decline of movie-going, and may or may not be the major cause. Further research is necessary to determine this.

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Recent NAEB Publications

High School Radio and Television Curriculum Guide, Ethel F. Tincher, Edward Stasheff, Edgar E. Willis, 40 pp. $1.00.

Report of the N.A.E.B. Research Seminar for Educational Television and Radio, December 9-13, 1957, Ohio State University. Edited by Dr. I. Keith Tyler. 31 pp. $1.00.

Report of the N.A.E.B. Seminar on Children's Television Programs, March 29 - April 1, 1958, Boston University. Edited by Harold E. Hill. 37 pp. $2.00

Report of the N.A.E.B. Video Recording Workshop, May 5-9, 1958, Station WTTW, Chicago. Edited by Cecil S. Bidlack. 62 pp. (Mimeographed) $1.00.

Report of the N.A.E.B. Seminar on Instructional Uses of Television and Radio, July 21 - 25, 1958, Purdue University. Edited by Elaine Afton. 62 pp. $2.00.

Conducting a Telephone Coincidental Survey, Dr. Samuel L. Becker. NAEB Research Project Report #4, describing in detail how to conduct a telephone survey. 15 pp. $1.00.

Order from: N.A.E.B., 14 Gregory Hall, Urbana, Illinois.

Erratum:

The editor regrets that in the April issue of the *Journal* two authors' names were inadvertently interchanged. The article entitled: "Understanding the Results of ETV Research" was written by C. R. Carpenter, and the one entitled "Wanted: Science Teachers for TV" was written by Alfred D. Beck and Barbara Yanowski.

NAEB Research Fact Sheets

Series IV: Audience Studies

27. "Books and Ideas" — the Impact of an ETV Program on Its Audience

By Lawrence Myers, Jr., Radio and TV Center, Syracuse University, February, 1959. 116 pages.

The purpose of this research was to assess the impact of one program unit: a specific series of educational television programs entitled "Books and Ideas," designed to appeal to an adult audience. This research was based on the belief that "every program unit —whether a single program or an extended series—should, in theory, attract an audience whose members possess characteristics unique to that unit. A cumulative knowledge of the audience attracted to program units and the effectiveness of units in accomplishing objectives will lead the broadcaster to increased understanding of his total television programming efforts."

This program series consisted of twenty half-hour programs produced for the ETRC by Syracuse University. Programs were broadcast on twenty consecutive Sunday afternoons over WSYR-TV. Audience analysis and program evaluation were conducted throughout the Syracuse Metropolitan Area. Simultaneously the utility and practicality of methods of television audience measurement were investigated.

The results obtained were as follows:

1. Although all audience-building efforts were of some value in calling the attention of potential viewers to the program, newspaper articles were the most important, with television promotion next. Also of value were direct telephone invitations and program flyers.

2. Audience sizes and audience shares were influenced more by the hour of broadcast, the weather, competitive programming, and the preceding programs than by variations in program content.

3. Cumulative audience-size

estimates demonstrated that the total homes tuned to the program substantially increased when measured on a two-, three-, or four-week basis. As measured by the cumulative data, the evidence is definite that "Books and Ideas" did not attract a "small but loyal" audience that watched each program, but rather a somewhat larger audience that viewed the program on a less frequent basis than one might have supposed.

4. Viewers differed significantly from non-viewers in most of the factors examined by the study. Some of the differences were that:

a. viewers had fewer TV sets and more radio sets in their living rooms, listened more to radio at night, and named more informative and cultural radio programs as their favorites. Radio was more of a "service" and less of a "background" to them.

b. viewers were less provincial in their orientation to television as a means of communication. They offered more specific criticisms of television programming, but also offered more positive suggestions for improving television. They were inclined to believe that programmers underrated the capacities of their audiences and felt that programs should do more to stimulate and challenge a person than is currently the case.

c. viewers read more non-local papers and read more serious and less personal sections. In other printed material — magazines, books—their reading tastes were also more information - culture oriented.

d. seventy per cent of the viewers had attended some college. More were in the professional class of employment and earning over $10,000 a year.

e. leisure activities were more "creative" and community participation was higher for viewers.

5. Followup mail questionnaires were shown to under-estimate the total adult audience, over-estimate the proportion of women in the audience, and over-estimate the frequency of viewing during the program series.

6. The telephone panel was demonstrated to be an efficient and valid method to determine cumulative audience.

In closing, the author suggests that further experimentation is needed to establish exact relationships between program ratings, cumulative ratings, audience turnover, and frequency of viewing; to design an operationally efficient method for continuous and comprehensive use; and to develop a satisfactory theory for the evaluation of the cumulative audience exposed to an educational program series.

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Series I: The Effectiveness of Television as a Teaching Tool

72. The Chicago City Junior College Experiment in Offering College Courses for Credit via Open Circuit Television: a Report of the Second Year of a Three-Year Project

By Clifford G. Erickson and Hymen M. Chausow, Chicago City Junior College, April, 1959. 19 pages.

This is a report of the second year of the Chicago City Junior College experiment in television instruction and is based on the experience of a large number of staff members of the Chicago City Junior College. This year of courses-for-credit as well as the first and third year was supported in part by a grant from the Fund for the Advancement of Education.

The second year of the experiment continued to test the hypothesis that TV students can do as well as regular students in college credit courses. During this year nine courses were offered—English, Biology, Physical Science, Mathematics, Accounting, Shorthand, Humanities, Political Science, and Psychology—to a total enrollment of 10,970 individuals. Of those enrolled, 75% were non-credit participants. It was found that interest in a television course, as shown by registration statistics, declines as it is presented for a second or third time. This necessitates either a constant addition of new courses or promotion of increased demand for TV instruction among those in the general population unaware of the availability of such instruction.

Retention of students varies by type of course and by place of course in sequence. Courses with primary objectives of content type

had better retention than those with primary objectives of skill type. Second semester courses of one year sequences had better retention than first semester courses because of the selection of students through withdrawal of the less able, less motivated students.

In Accounting, English, Social Science, Psychology, and Shorthand there were no significant differences between the control and TV groups. Significant differences were found, favoring the TV group, in Humanities, Biology, and, in one instance, Physical Science.

The second year reaffirmed the conclusions of the first year for a variety of new courses in more carefully controlled experimental situations comparing TV and conventional instruction. The third year program is focusing an important part of its experimentation on a comparison of the quality of TV instruction for classroom students with conventional instruction for the same kind of students. The differences shown by comparisons in the first two years may have shown differences in populations rather than differences in methods. By removing the differential in populations an attempt is being made, in the third year, to make valid comparisons of TV instruction in the classroom with conventional instruction, thereby making the method of instruction the primary variable.

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Series I: The Effectiveness of Television as a Teaching Tool

70. A Brief Study of Televised Laboratory Instruction

By W. F. Seibert and J. M. Honig, Purdue University.
TVPR Report No. 8, February, 1959. 17 pages.

The vast majority of the materials used in the instructional television presentation of the past have been drawn from the lecture, recitation, and discussion portions of existing courses, while relatively little attention has been paid to the possibilities of televised laboratory instruction; in 1956 and 1957, the Fund for the Advancement of Education made grants to the Purdue University Department of Chemistry to permit study of televised and other audio-visual instruction in the general chemistry laboratory. This study was designed to provide data which could supplement the large amount of information from earlier and more lengthy explorations into the use of televised and other audio-visual instruction in the general chemistry laboratory (see *NAEB Journal*, Series 1, No. 37).

Seventy subjects were signed to participate, and a plan was developed to eliminate excess data, if any, randomly. Each of the subjects was randomly assigned to one of the following five instruction-testing conditions:

1. televised laboratory instruction with learning measurements taken within two hours of the completion of the instructional presentation.

2. televised laboratory instruction with retention measurements taken during a session held five

weeks after the instructional presentation had been given.

3. conventional laboratory instruction with learning measurements take within about two hours of the completion of the instructional presentation.

4. conventional laboratory instruction with retention measurements taken during a session held five weeks after the instructional presentation had been given.

5. no laboratory instruction — one random half of this group was tested and evaluated on the evening of the instructional presentations and the second random half was tested and evaluated during the session which was held five weeks later.

The instructional presentations were based on the contents of two sound films — one dealing with techniques in use of balances and the other covering the apparatus and procedures for making volumetric measurements. Subjects were not permitted to take notes during the presentations.

Results indicated that televised laboratory instruction can serve as an effective substitute for such instruction as conventionally given. However, the principal reservation to be attached to the above conclusion concerns student retention of abilities acquired by means of televised instruction. Generally, the television group tended to have lower scores on the delayed tests than did the conventionally instructed groups, which may indicate a lack of retention. The author suggests that some representative and carefully controlled studies of retention are in order for the future.

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Massachusetts ETV

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cost of participation in the project (twenty-five cents per pupil) pays for the production of the programs and for the teaching guides. Television sets must be obtained by the individual school system. In some cases, parent-teacher organizations have contributed sets; in most cases, sets have been purchased with school equipment funds.

In the fall of 1958, with solvency assured, the school television organization directed much of its energy toward increasing the number of programs. While the "pilot" spring series had been an unqualified success, many of the activities of the project were still of an experimental nature. Through the medium of videotape recording, each program was to be presented twice daily, at times determined by a survey of classroom teachers. Of the five program series scheduled for classroom presentation, two were familiar to viewers of WGBH-TV: (1) Physical Science, Grade Six—a continuation and expansion of the spring series, under the direction of Eugene Gray, and (2) Natural Science, Grade Five—a selected group of kinescopes from the program "Discovery," featuring Mary Lela Grimes, award-winning educational telecaster.

To these programs were added series for lower grades: Social Studies, Grade Four; Literature, Grade Three; and Music, Grade Two. In each case, the particular subject area and grade level had been determined by the Operations Committee after long hours of deliberation. Since the specific objective of the in-school telecast was, and is, to supplement the curriculum, the "21 Inch Classroom" was able to feature, for the entire fall term, such motivating programs of enrichment as the fourth-grade series on the New England heritage, taught by Mrs. Caroline Maloney of the Wakefield Public Schools. In fact, every one of the in-school television series so far presented can be characterized as "enriching and motivating." It has been the policy of the Eastern Massachusetts Council to avoid direct teaching by television and, rather, to concentrate on the presentation of supplementary material designed to constitute a new experience for the children viewing.

Apparently, this policy is a reflection of the desires of school systems in eastern Massachusetts. In the first few weeks of this year, forty-four additional communities have joined the in-school television project; thus, one hundred nineteen educational agencies are now contributing members. This recent expansion may be due partly to the increase to maximum power experienced by WGBH-TV last November; however, since most of the new partic-

ipants are within the original primary viewing area of the educational station, it is logical to assume that the high caliber of instruction was responsible for the unanticipated increase in membership. Certainly, there are now extremely few communities in the Greater Boston area which are not participating in the project.

The winter semester of the "21 Inch Classroom" began in February with the addition of two program series. Both of these new televised lessons are kinescopes from the St. Louis educational television organization, which was recently visited by the Chairman of the Massachusetts Executive Committee for School Television, Dr. J. Bernard Everett of the Newton Public Schools. The programs, which Dr. Everett saw in operation in St. Louis, are "Lines and Shapes" (for elementary grades), a series of art lessons, and "Here and There" (for lower primary grades), a series of motivating field trips. In the "Lines and Shapes" telecasts the instructor stimulates the children to future self-expressive activity by treating each program as the beginning of an art project. No project is carried through to completion on the program. The "Here and There" series includes such titles as "Let's Visit the Zoo" and "Let's Visit a Farm." "Here and There" is designed to acquaint the children with the wide range of interests and activities in the modern world.

Neither of these two kinescoped series is assigned to a specific grade level; the "Here and There" series especially may present individual programs which will be used by different grades. The school television administrators feel that in all of these telecasts or supplementary material, utilization should remain the province of the classroom instructor. Therefore, any of the in-school programs may be used in any class, if the teacher decides that the instruction will be beneficial. One of the purposes of the study guides is to allow the teacher to select in advance those presentations which will be most helpful in the course of study. Since the programs are telecast twice daily, the classroom instructor has an opportunity to adjust class schedules for optimum utilization.

In accordance with this policy of program selection, the presently televised courses in Literature and Music are not restricted to a single grade level. In "Music, Grades One and Two," Anthony Saletan of the Newton Public Schools presents programs designed to familiarize the children with folk songs and dances, and with instruments, and to encourage them to express themselves in song and dance. "Literature, Grades Two and Three" is a series of story-telling periods, with frequent special programs featuring guests from the literary world. Mrs. Beryl Robinson of the Boston Public Library acts as hostess and teacher. Through cooperation with the library and similar groups, the television project intends to utilize to full advantage the wealth of cultural resources in the Greater Boston area.

Literature, Grades Two and Three: Mrs. Beryl Robinson begins another story-telling session

The two science series are presented on alternate weeks, as they were last fall. The "Physical Science, Grade Six" series is conducted by Eugene Gray, who, along with the "21 Inch Classroom," is experiencing his first anniversary as a television teacher this spring. The "Natural Science, Grade Five" programs, selected kinescopes of "Discovery," round out the elementary school television curriculum. These science programs are telecast on alternate weeks in order to allow ample time for classroom activities connected with each lesson.

The six current television series, ranging from social studies in kindergarten to science in the sixth grade, occupy, at the most, only one hour (i.e., two broadcasts) of Channel Two's morning time per day. The remainder of the educational station's daytime hours has been reserved for school television use, under the auspices of the Massachusetts Executive Committee for School Television. Through mutual agreement, this time has been set aside for future developments in Bay State school telecasting.

The Executive Committee has looked to the future in still another way. On February 9, it appointed Dr. Marie M. Gearan Education Director of the "21 Inch Classroom." The former Boston College educator, working closely with the Operations Committee, will be responsible for developing the educational policies for the television project. Miss Gearan, whose exceptional career in education has included positions at the State Teachers Colleges in Fitchburg and Lowell, was the first Dean of Women at Boston College, where she was also Professor of Education and the Director of Laboratory Experience in the College of Arts and Sciences, the In-Town College, the Graduate School, and the School of Education. With this wealth of experience from which to draw, Dr. Gearan will conduct many of the activities heretofore delegated to production and administrative personnel. For some time, there has been the growing conviction that an Education Director was needed to maintain the high caliber of in-school productions, in the face of the inevitable expansion of the project.

The project anticipates even greater expansion in the near future. Because of the universal nature of the in-school television programs, communities in the central and western parts of the Bay State have been endeavoring to find a way to receive the telecasts. Many of the small towns in those areas would acquire the televised instruction at a bargain rate, because of their low student population. Unfortunately, the transmitted signal of Channel Two, even after its recent maximization, cannot penetrate the barrier of the Berkshire Mountains. As was the case in eastern Massachusetts, the expansion of the project to the west is dependent upon the volition of individual school systems. At the present time, most of the cities and towns in question have expressed interest in joining the in-school television organization, provided that program transmission is practicable.

In another area of growth, the television committees are now considering program changes and additions for next fall. Under close scrutiny are proposals for an elementary French course in cooperation with the Massachusetts Council for Public Schools, a program series on World Affairs for the secondary school level (supported in part by the World Affairs Council), and a Natural Science program developed by the Massachusetts Audubon Society and the Children's Museum of Boston. The "21 Inch Classroom" has also made a preliminary investigation of a kinescoped series of Safe Driving lessons from Cincinnati (to be used in conjunction with live programs of local instruction). It is too early in the year to state specifically what the revised program schedule for the fall will be, but it is expected that at least the French, World Affairs, and Natural Science series will be incorporated into the project.

Notwithstanding the year of experience to its credit, the Massa-

chusetts project still engages in continual reassessment of its televised instruction. There are no rules for determining the correct subject areas or the appropriate length and frequency of school programs; nor is there yet in the project a very precise system of evaluation. In exercising their collective judgment in these important matters, the project administrators are certain to make some mistakes; they can determine their progress only by a review of the reactions to the in-school television presentations.

As the "21 Inch Classroom" celebrates its first anniversary this spring, those responsible for it may well look back in pride at the accomplishments of the past year. Out of an amorphous body of divergent institutions, resources, and individuals, they have fashioned a well-organized, highly-regarded instructional tool. At a time when American education is subject to criticism at all levels, the in-school television project has taken the liberal approach—placing elementary school instruction "on the air" for all parents to watch and to judge for themselves. It is difficult, of course, to determine the extent to which the successful television venture has affected other aspects of education locally. This much is certain: it has created an atmosphere of renewed respect for and confidence in public education in Massachusetts.

Videotape Recorder

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handled more conveniently and efficiently through Videotape recording; and, of course, just as television has not replaced motion pictures, many services, such as theater motion pictures, are unaffected by Videotape recording.

The principal application of Videotape recording to date has been in the field of commercial television. Most of the performance abilities of this recorder which led to its acceptance by commercial television also lead to applications in the educational television field. Some of these applications have been grouped together and outlined below.

I. Many applications are related to the pre-recording of TV lessons. Such pre-recording applications include the following:

A. A pre-recorded backlog of TV lessons in each TV course can be developed for use when the TV teacher is unable to be present for reasons such as schedule conflicts, etc.

B. The schedules of outside talent will not necessarily coincide with the most desirable time for TV presentation to students. Such schedule conflicts can be eliminated through

pre-recording of programs.

C. TV lessons will frequently benefit students in another TV area outside of that covered by the originating TV system. Pre-recording of lessons will enable such programs to be viewed outside of the range of a specific TV system without incurring microwave interconnection costs. This is made possible through interchange of tapes from one TV system with a Videotape recorder to another.

D. Pre-recording of TV lessons reduces the inherent pressure of live presentations without losing the impact of live quality.

E. Pre-recorded TV lessons can be potentially better teaching tools than live presentations inasmuch as they allow a teacher to review her presentation and set the pace of her lesson to meet the requirements of her students. Those portions of a lesson that either drag or move too rapidly can be corrected in advance of playback to the student viewing audience so that the TV instruction can be as nearly perfect as possible.

II. Under different circumstances, it is more advisable to record a lesson simultaneously with its presentation to the student viewing audience. Such applications are as follows:

A. A series of lesson sequences recorded on the Videotape recorder can be built up for loan to other educational institutions.

B. Many times the scheduled presentation of a TV lesson will not coincide with the most desirable viewing time for all classrooms within a particular TV system. Under these circumstances, it is much easier to record the initial presentation and repeat the lesson at a later time through playback of the recording, rather than a repeat live performance.

III. Recorded lessons, whether they are acquired through pre-recording or simultaneous recording, can either be stored for future use or the tape can be erased and be used for another lesson. In those instances where lessons are stored for future use, additional recorder applications become feasible. The TV lesson series stored on tape can be repeated the next semester or the next year, as the case may be, through playback of recorded tapes, rather than repeating the live TV instruction.

A. The required up-dating of material in stored TV lessons from one use to another can be accomplished very easily with magnetic tape. This is done either by erasing and re-recording those segments of the total year's teaching that are to be up-dated, or by splicing in new tape sections to replace that portion being up-dated.

B. The up-dating of subjects from one year to another will not require as much time as the preparation and presentation of the original lesson re-

quired. Teaching time of the instructor making the original presentation has therefore been made available for other assignments, such as the teaching of another level of the same subject or a related subject, yet the impact on students viewing the tape playback is identical to the original live presentation.

C. Area repositories can be established for TV lesson recordings, enabling an evolution to start by using the best teachers in an area to teach a particular subject. Such recordings can then be used by schools in the area according to their own schedule requirements.

IV. A permanent school documentary materials library of recorded tapes can be established for inserting into live lesson presentations to enhance the educational value of the program.

A. Sigificant public events can be recorded on the Videotape recorder for retention in this library. Visiting specialists can be recorded. Rare physical, social, economic and similar phenomena and events can also be recorded. Field background information for history, science, industry, etc., can conveniently be recorded for this library on tape.

B. Laboratory experiments can be recorded under the best possible conditions and at considerable expense when necessary, by large sponsoring organizations. Time, effort and money involved will be justified by the great numbers of students who will be able to view the experiment through many subsequent playbacks of this lesson.

V. The Videotape recorder also is a valuable tool for scholastic training and self-improvement of TV teachers. Applications in this category are:

A. TV lessons can be recorded for post evaluation and study by groups of TV teachers and their classroom counterparts.

B. TV lessons can be recorded in advance and used as a basis for self-correction, both for the teacher and other members of the production staff, through observing a playback of their lesson in the classroom and noting the effect on students and classroom teachers.

C. Recorded lessons can be played back for analysis by the teacher and director to eliminate those portions that drag or require strengthening from an educational point of view.

D. Experimental lessons can be recorded on tape in selected subjects at various grade levels for exchange with other TV teaching projects for purposes of evaluating the content, lesson structure, teaching techniques, etc.

E. The Videotape recorder will also serve as a valuable rehearsal tool to assist TV teachers and the production staff to acquire confidence and

the best possible lesson presentation.

VI. There are other applications of the Videotape recorder aside from the direct lesson applications outlined above. These include the development of a library containing typical video teaching tapes in a variety of subject areas and grade levels for demonstration uses with:

A. Parent groups
B. Visiting educators
C. Service clubs
D. Sessions at professional educational meetings
E. Teacher-trainees (in-service, teacher colleges, new teachers in county)
F. Boards of education
G. Pre-recording of PTA programs
H. Evening adult education subjects.

The foregoing certainly does not represent the total list of applications for Videtape recording in the field of educational television. It is meant only as a stimulus to examining the possibilities of this new electronic tool to determine its correct role in assisting educationally or economically any particular teaching endeavor.

Criticize Commercial TV?

Continued from page 7

John B. Cunningham, Board Chairman of Cunningham & Walsh, Inc., told the Advertising Federation of America recently, ought to give up some of its time to promote learning in every "farm, tenement, and garret." This would make available to every American the opportunity to earn a college degree.

Mr. Cunningham supported his argument by pointing out that funds are now being secured for educational TV from the Federal and state governments, from foundations, from individuals and from industry. And he thought that with these groups investing time and funds it was high time that the advertising industry recognized its obligation to make its contribution to the realization of TV's educational potential.

Should not television realize (and act accordingly) that education is basic to survival in today's world; that television has a major and more significant service to render to our society than to meet what it decides are the present interests of the people and, secondarily, to program for minority tastes and interests? Will not the present criticism of television then soon disappear, as will also the need for Mr. Sarnoff's proposed campaign?

—TRACY F. TYLER, *Editor.*

Book Review

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vision can provide the stimulus, the scope, the unification of the diverse and specialized fields of knowledge that the average viewer cannot correlate for various reasons—lack of time, lack of training, insufficient interest, etc. ETV has not been used basically to replace the teacher. Rather, it has been used to make educational efforts more vital, exciting, and meaningful. The best ETV talent is the enthusiastic and capable teacher specialist, not a professional actor. However, the author would prefer the latter to a subject specialist who is dull and uninspiring. The author also laments the attitude of some professional educators toward ETV and calls it "appalling" and essentially negative. Some of the reasons for this may be ignorance of the present use and potential of ETV, a narrow outlook on what constitutes an educational experience —the belief that a student can learn *only* through traditional classroom methods, jealousy of local success and popularity of associates who dared to use TV, or failings of local television due to poor programming and lack of good public relations. He states that "Professionals in the community, personnel in radio, community theater groups, and specialists in areas such as medicine, dentistry — all with little or no direct interest in the *philosophy* and *methodology* of education — have more often sparked the development of ETV. This is a sad commentary on the interest, vision, and pioneering spirit of our leaders in professional education." Since the primary objectives of commercial and educational TV differ, the author suggests aiming each program series at a specific audience —using a rifle rather than a shotgun — in order to reach and hold the greatest number of viewers. Quality ETV depends upon "outstanding talent——, effective planning, and coordinating procedures between station personnel, talent, and the learning group teacher. Also, it is quite important that ample rehearsal time be provided." Service schools and educational people utilizing TV services must accept the responsibility for the program and its content. Professional broadcasters should accept the responsibility for assisting in the development of the best kind of program. "While the two basic agencies (education and TV) must collectively produce the program, its final utilization is in the classroom (or home) and this utilization remains the responsibility of the sponsoring schools and organizations."

The author states that no one type of show is inherently superior to any other. One of the main criteria of quality is the effective presentation of ideas; and here he

suggests curbing the tendency to cram too much into a half hour — not only in terms of amount of material covered, but relying too much on oral delivery in a visual media, or stereotyped and limited use of visuals.

ETV should consider and cope with the educational needs of the community served by the station. The station staff and viewers should feel that it is *their* station, and "the consumer and user should dominate the *educational* policies of the station," while the educational and training people must feel as though it is their right to establish policy and not that of the technical television directors and engineers.

Television in Europe

The basic difference between American and European television is the extent of government control in most of the European nations. This is a mixed blessing: there is more time for rehearsal, with traffic and scheduling offering less pressure; but without competition, the search for higher quality, variety in programming, and exact timing is less intense. In spite of creating a situation which assures a "captive audience" for cultural offerings, the audience soon turns from "educational" to "entertaining" when the monopoly is broken and a competing station enters the area, as evidenced by the recent ITA-BBC situation in Great Britain. The economic standards of the people are lower than that of the United States, and the price of receivers is at least as high as if not higher than standard sets in the United States. Thus, the growth of viewing audiences is expected to be slower. However, there is a greater opportunity for group or community viewing.

Because of the differences in definitions which European countries adopted, a nation such as France, with a definition of 819 lines, can protect its home market against TV equipment produced abroad and against programs produced in other areas. This problem was partially alleviated with the development of "Eurovision," which acts as a switching center, converting the broadcast of a particular definition of one country to the compatible definition of another country.

Although school broadcasting goes on in several countries, it is a very small portion of the total programming. Despite the relatively few hours of programs specifically designed for school children, European television professionals have taken this aspect of their programming quite seriously.

The author closes this report with brief summaries of television in Great Britain, The Netherlands, France, West Germany, Switzerland, and Italy. His comments throughout, although not original in all cases, are delivered with a sincerity and concern for the future of ETV that make this report essential reading for participants in ETV as well as the at-home viewer.

JEANNIE DIETEMANN

Radio's Influence

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study of personal influence must define the areas in which evidence of personal influence will be sought.

It was desired to compare the audience of KUOW to the audiences of other radio stations. Therefore subject areas of KUOW program emphasis were employed.

To represent KUOW's programming, cosmopolitan public affairs, contemporary ideas, theater, and serious music were selected. For commercial stations, the subject areas were marketing (commercials), local public affairs, light music, and personalities (disc jockeys).

Personal interviews were completed with 125 respondents selected by simple random sampling from the KUOW mailing list and 126 respondents similarly selected from the *1958 Seattle City Directory*. All respondents were questioned about all eight subject areas.

To isolate influentials in each of the eight subject areas two methods were used: an *a priori* method and a *self-designation* method.

As part of the *a priori* method, questions were developed to rank each respondent on the degree of information and opinion he held in each subject area. Three ranks (highest, medium, and lowest in relation to other respondents) were used for each criterion.

A "Gregariousness Scale" identical to that used by Katz and Lazarsfeld was developed. It was based upon the number of friends reported by respondents and the number of organizations to which respondents belonged.

The rationale for the *a priori* method was that the probabilities of personal influence in any subject are related to information, opinion, and opportunities for self-expression.

Respondent ranks in information, opinion, and gregariousness were combined to form an *Influence Rank* for each respondent for each of the eight subject areas. It was hypothesized that respondents who were ranked "highest" in influence would be more likely to have personal influence in a subject area than those ranked "medium," and that those ranked "medium" would be more likely to have personal influence than those ranked "lowest."

Partly as a validity measure, and partly to obtain an independent measure of personal influence in each subject area, the *self-designation* method of isolating influentials was employed. This was determined by asking respondents whether they had "volunteered to

others outside their families" opinions they had stated during the interview. Those answering in the affirmative were classified as "self-designated influentials."

Follow-up telephone calls were made for validation of claims of personal influence. During the calls, *influencees* were also asked their occupations.

Responses were coded according to the *1950 Census of Population, Classified Index of Occupations and Industries*, and the occupations were used as crude measures of the places of the influencees in the social-economic and power structures of the community.

Each respondent was also ranked on a "status scale," similar to the scale reported by Katz and Lazarsfeld.

Findings

Information, opinion, and gregariousness levels were all found to be independently significant as contributors to personal influence in the selected subject areas. That is, when data were separately controlled for each criterion, the rate of claims-per-respondent descended from highest through medium to lowest. In only four of seventy-two possible changes was the expected direction of change reversed.

When the three criteria were combined to form the *Influence Ranking*, results were as expected in all subject areas, with chi square $p<.01$ in seven of them. In the eighth subject, personalities, the change was in the same direction but not statistically significant.

Since no mention of an *a priori* method of detecting "opinion leaders" could be found in the literature, it is felt that this method with its clearcut results makes an original contribution to this swiftly-developing field.

To make the comparison of the two sub-samples under the *a priori* method, influence rankings of the two groups were compared in each subject area. KUOW listeners had higher influence scores than non-KUOW listeners in local public affairs, contemporary ideas, cosmopolitan public affairs, contemporary ideas, theater, and serious music. Differences were significant beyond the .01 chi square level.

In the remaining three areas, data also favored KUOW listeners, but the differences were not statistically significant. (It was in these areas and in local public affairs that non-KUOW-listeners could have been expected to score *higher rankings* than KUOW listeners. The areas were chosen as representative of commercial stations' broadcast emphasis.)

If the *a priori* method were sound, we should expect similar results from the self-designation method. The findings were, as expected, similar. In all subject areas but personalities, more KUOW listeners than non-KUOW-listeners were self-designated influentials. (Chi square $p<.01$ in five subjects, $<.05$ in two.) Only in the "personalities" area did non-KUOW-listeners claim more influence transactions,

but the difference was not statistically signifant ($p > .20$).

Each of the 251 respondents could have claimed personal influence in each of the eight subject areas, a total of 2,008 possible claims. The number of claims actually made was 578—28.8 per cent of the theoretical potential.

Some 342 designated influencees of the 578 claimed were contacted by telephone. Of these, 202, or 59 per cent, confirmed that the conversation had occurred. Thirty-one per cent, or 105, were unable to recall the specific conversation with certainty, while 35, or 10 per cent, denied that it had taken place. [2]

Influencees designated by the KUOW-listener sub-sample confirmed at a rate *higher* than influencees designated by the City Directory sub-sample, with chi square $p < .01$.

KUOW listeners made 378 influence claims, compared to 200 claims for non-listeners. Comparative percentages of validation were: for KUOW listeners, 58 per cent confirmed, 38 per cent unconfirmed and 4 per cent denied; for non-KUOW-listeners, 44 per cent confirmed, 46 per cent unconfirmed, and 9 per cent denied.

Thus from the standpoint of *dissemination of ideas* in a community, KUOW listeners were found under both methods of isolating influentials to be much more active in exerting personal influence in seven of the eight subject areas than were those selected randomly from the Seattle City Directory.

When all respondents were ranked on a "status scale" developed from educational and income levels, 55 per cent of the KUOW listeners were in the highest ranking, 25 per cent in the medium and 20 percent in the lowest. Of the non-KUOW listeners, 19 per cent were in the highest ranking, 21 per cent in the medium and 60 per cent in the lowest.

When occupations were classified by the Bureau of the Census index, 69 per cent of the KUOW listeners were found to be in the professional, technical, manager, official, or proprietor groups. Only 28 per cent of the non-KUOW listeners were in the same occupation categories.

Of the *influencees* of respondents, 80 per cent of the KUOW listener influencees were in the same top occupation categories, compared to 44 per cent of the non-KUOW-listener influencees.

Summary

KUOW listeners were found to be more gregarious and of higher status than non-KUOW listeners. KUOW listeners were generally better informed, stronger in opinions, and more likely to relay opinions to others in the subject areas considered than were the non-listener sub-sample. Not only did the KUOW listener group relay personal influence more actively, but, judged by the occupational criterion, they were influential within a

2. Katz and Lazarsfeld conducted a similar follow-up prodecure by personal interviews and reported a rate of 64 per cent confirmations, 26 per cent "don't recalls" and an identical 10 per cent of denials.

group more highly placed in the community than those influenced by non-listeners.

It is regretted that space does not allow a fuller explanation of procedures and findings or statements on validity and reliability.

Sketchy though this report of necessity is, it is felt that the findings presented provide a clearer insight into the actual influence of educational broadcasting in the United States than could be achieved simply by numerical estimates of total audience.

In general, it is expected that most educational station audiences would be similar to that of KUOW. This study offers strong evidence that, compared to the audiences of other stations and to those groups who do not listen to radio, the NAEB audience is truly an elite group in power, prestige and personal influence in the subject areas of interest in educational broadcasting.

It is hoped that future estimates of the influence of educational radio broadcasting will take into account these findings.

School TV in Georgia

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the use of Channel 8 for this purpose.

4. The construction of a broadcasting station to be located in Southeast Georgia. The FCC has already granted Channel 9 to Chatham County for educational purposes. Recently Chatham County agreed to the transfer of Channel 9 to the State Department of Education. This is now in process, pending FCC approval.

5. Plans are also being worked out whereby local school systems may receive financial assistance in the installation of TV receiving sets.

The passage of pending federal legislation to assist the states in the development of educational television will be welcome and will be of great assistance to Georgia. The proposed legislation would provide $1,000,000 to each of the states for educational television. I believe Georgia should match these funds and fully develop our network of television stations. The passage of this legislation will no doubt lead to the establishment of a fourth network in this country for educational broadcasting. Perhaps we can start this network here in the Southeast.

As indicated above, we are now in the process of determining personnel needs. We realize that it is not practical to staff a station until we have one. However, it is imperative that we employ curriculum personnel now. We expect to select our beginning teaching staff around July first. We shall also employ a producer-director to work with the teachers in the planning stages. We anticipate that science, mathematics, and modern foreign languages will be the first subjects to be televised.

In addition to the full-time staff, we shall have part-time consultants who are specialists in the subject areas to be televised. These part-time consultants will work with the staff at regular intervals.

As we proceed with the full development of our program, we hope to transmit the basic principles in other areas of learning. Thus, in the future, programs may be concerned with such areas as social studies, the humanities, etc. But for the 1960 deadline, we are limiting our programming to the subjects of science, math, and foreign languages.

We feel that one of the most important facets of this program is that of the development of readiness among the teachers and the public for education via television. This means readiness in attitude toward the program and in the area of skill in its utilization. We are, therefore, planning to use the time between now and the first programming to promote this readiness. While our plans have not fully materialized, we do expect to:

1. use existing organizations such as departments of the GEA and the University summer courses to acquaint local educators with plans for instituting educational television;

2. to set up workshops and clinics at local levels for a study of curriculum preparation of teaching aids and for demonstrations via television.

Local facilities for receiving the programs will be financed jointly by the state and by local systems. We are inclined toward the idea that those systems which volunteer in good faith to cooperate in curriculum development at both state and local levels, and to cooperate in classroom participation and in the evaluation within the framework of the state organization will receive the most encouragement from the state in the purchase of receiving equipment.

We are aware that television is a tool by which we may do a job of education, but we also recognize that it has its limitations. Some of these limitations may be turned into assets. For example:

The school day consists of a given number of hours, so in general only a certain number of periods can be televised. This situation exists at present because not more than one program can be transmitted at one time. One transmission at a time makes for more rigid scheduling. At first these look like powerful limitations; but when we look at present practices, we may question some of the things that we are doing and find

that the limitations of time and transmission imposed by television may be turned into assets.

We might ask ourselves whether education necessarily has to begin at school and end with the close of the school day. Could we provide some educational programs for the pre-school age, beginning at 7:00 in the morning? Could certain educational programs be conducted after school hours?

Can the television lessons be taught in less time than the traditional classroom lessons? Because of the carefully planned television lesson which states its purpose and follows through to a logical end, much time is saved. Experience has taught that lessons which normally require 30 minutes can be done better in 15 minutes via television.

Is it necessary to teach by way of television every day? It is believed that television lessons should serve to stimulate further activities on the part of individuals and groups in the classroom. For these additional activities time would be needed to carry on individual and group projects and research in the classroom. Therefore, it might be well to teach on television at intervals of every other day or possibly longer intervals depending on the nature of the subject being taught.

Some of the questions raised indicate to us the need for research in educational television. Georgia has one of the best teaching film libraries in the world. We should analyze these films to know what can be used in each of the courses. We should look at our film library to see what is available for educational television.

Perhaps our production center here in Atlanta can serve other states. It would seem desirable for all of the states in the South to exchange teaching materials for television and help each other to whatever extent we can.

These comments have indicated to some extent the things that we are talking about and planning to do in connection with educational television.

Story up to Now

Continued from page 6

television stations serve? Their contributions may be listed as follows:

1. An educational television station complements rather than competes with a commercial station by providing a programming service which commercial stations, because of their base of operation, are unable to provide. A commercial station's purpose is to make money. An educational station's purpose is to serve the unmet programming needs of the community it serves. It has a service function to perform.

2. Commercial stations have as their primary interest program-

ming for a majority of the viewers in a community. They aim at "all of the people all of the time" because the sponsor wants to reach as wide an audience as possible. On the contrary, educational stations aim at specific audience groups — at minority audience groups. Even these, it must be remembered, are quite substantial audiences in most American cities. Educational stations offer "something for everybody, but everything is not for everybody."

3. Educational stations aim to provide a rich and expansive educational program fare, rather than merely to entertain. James Day of KQED, San Francisco, said the other day that viewers used to write him: "We like your programs because there aren't any commercials." Now they say: We like your programs because we are tired of being entertained." Well this might be!

4. Educational stations build on the needs of the viewers, not on the needs of the advertiser or sponsor who keeps them on the air.

What Types of Programs Are Being Offered by Colleges and Universities?

Throughout the nation, public schools and colleges are finding television an indispensable resource in many phases of their educational programs. Some of the ways in which educational institutions are using television are as follows:

1. For public relations
2. For televising school board meetings
3. For in-service programs for teachers
4. For in-school programs, elementary and high school
5. For homebound
6. For presentation of programs for the pre-school child
7. For presentation of out-of-school programs for children and youths
8. For adult education — general education programs
9. For community forums
10. For telecourses for high school students, and college telecourses.
11. For closed circuit uses.

Each of these uses is important — no one better than any other. More attention has been given lately, however, to instructional television—the in-school use of television for instructional purposes.

Closed-Circuit Picture

While these developments in broadcast educational television were taking place, the rise of closed-circuit television installations throughout the nation has been nothing short of phenomenal. Closed-circuit installations are within financial reach of most educational institutions; hence, there are now nearly 300 on the air doing all types of programming. One or two of the most unusual projects in closed-circuit television are the following:

Hagerstown Project — In the 30 months that have elapsed since the start of the now-famous Hagerstown, Maryland, closed-circuit five-year experiment connecting 49 schools in Washington County,

Maryland, this project has steadily grown both in extent and breadth. Many significant things are being undertaken, and this might well be called educational television's showcase. Nearly every class in the system now receives two television lessons each day — and probably will not receive more than this. This project has done much to raise the quality of instruction, although it has not necessarily saved substantially on teachers or buildings. It has given children in Hagerstown, in effect, two teachers — one in the classroom and one on television.

Chelsea Project in New York City — This is an experimental closed-circuit television communications system in a low-income housing project. Six hundred and eight apartments are connected to the system, which includes a public elementary school, a neighborhood settlement house, a public health center, and a public housing development. The purpose of the project is to introduce, extend, and enrich educational facilities in the home, community, and school. Chelsea is a section on the West Side of Manhattan. The neighborhood has three ethnic citizens groups: mainland whites, mainland Negroes, and Puerto Ricans. Two primary languages are English and Spanish, in many cases one being spoken to the exclusion of the other. The people in this area are having problems of adjusting to big city life, and of living in a mixed neighborhood. The project is sponsored by the New York City Board of Education, the Hudson Guild Neighborhood House, and Language Research, Inc.

Some Generalizations

Now that we have seen the chronology of educational television development, let us slice this another way to see if we can make a few generalizations based on personal observations of what has been happening.

1. *Broader Involvement of Teachers Needed*—In the early formative years of educational television's development, time was at a premium, else the channels would be lost. This caused educators to try a short-cut approach to television's development in order to get the job done. School administrators were the first to "get on fire" for educational television. Unlike other school programs, audo-visual programs, for example, educational television did not begin at the grass roots; rather, it was imposed from the top down. Here was a case where the administrator was pressing the audio-visual person or faculty to adopt television. This is understandable with the pressure of time limitations, but it was not without its accompanying dangers. The community needed to be involved — so did the school staff and so did teachers! Consistently, teachers have been left out of the planning for educational television from the earliest days. Little wonder then that resentment has developed among teachers toward the medium and its use in education. Everyone was proclaiming how wonderful a bonanza television would be for the teacher — but

the teacher was silent and relatively unaffected by the whole thing. Top educational leaders and outstanding citizens were chosen to plead educational television's cause before the FCC because people with status were needed — and teachers did not have that status! As Blanche Crippen, formerly of the JCET staff and now Professional Assistant, Council of Chief State School Officers, NEA, wrote in the March, 1958, issue of the Journal of the American Association of University Women, "Not important enough for the hearings, not popular enough for community television, teachers are belaboured for their skepticism about televised education." But now the support of teachers is desperately needed if television is to succeed. Teachers can make or break the use and acceptance of television in our schools and colleges. But we will have to plan *with* them — not for them!

2. *Trend Toward More Formal Type of Classroom Training* — There has seemingly been a shift in emphasis from the concept of community television, with its accompanying use of television for informal adult education, so prevalent in the early days, to an emphasis on direct teaching programs on television, particularly at the elementary and secondary school levels. People are getting the idea that educational television is a teacher standing in front of a camera! This swing to the formal lecture type of presentation on television is of rather recent origin. I can well remember the many conferences I attended in the early days of educational television where nearly every speaker proclaimed that educational television would find its greatest potential in the education of adults. It was in fact considered a "natural" for use in adult education. Lately, the focus seems to have shifted to the in-school area, and adult education seems to be the "forgotten" area of television programming. We need to restore our concern for adults.

3. *Need for Experimentation in New Types of Program Designs* — Recent conferences I have attended have been stressing the importance of developing program designs other than the formal lecture presentation. Television *could* be more than transmission of information! Formal courses and "lessons" have their place on television, but to stop here would be to be to restrict TV's use. We must use the medium *above* and *beyond* the reproduction of lessons if TV is to reach its potential. What types of programs might be designed which will bring about critical thinking on the part of viewers? Must everything be presented in thirty-minute formats; or could some episodic presentations be planned wherein a concept might be developed in a short period of time, or wherein unstructured material might be presented in an open-ended manner? How can we adapt television to individualized learning? More and more the need is developing for students to learn on their own and become more independent in their research skills. How can television contri-

bute to this? In other words I see a "new look" developing in educational television. We are at long last recognizing that television will not and cannot do the total teaching job, but it can be used, in such a way as to make learning much more effective qualitatively. We are beginning to look at television from where the learner sits, rather than as just a teaching device to transmit information and impart facts. It can do a job in every subject — not the same job, to be sure — but it can serve a purpose which teachers and learners need served. We are now beginning to face up realistically to a few facts of life about learning and television:

a. *Watching* is not necessarily *learning*. Exposure to television alone does not guarantee learning. Learning takes place *within* the individual and not on the television screen. At its best, television provides *opportunities* for learning. The learner alone can accept or reject these opportunities.

b. The learner should be considered as a rational participator, rather than a passive receptor of impressions.

c. When used by itself, without a teacher, television makes only a minimum contribution to learning. It makes its maximum contribution when it is used wisely and effectively by the classroom teacher in response to teaching purpose or learning need.

d. Interaction is an essential ingredient of most learning situations. It is probably more important in learning situations where perceptual, affective, and cognitive learnings are desired. However, in learning situations where the desired outcomes are such that they can be learned by rote methods, interaction is not so important.

e. Television has certain strengths and it also has certain limitations. We must capitalize on the first and recognize — and seek to overcome — the latter.

f. Education is not a product which can be packaged and mass produced.

The important reason for adopting television, as I see it, is not to save on teachers or classroom space but to improve the quality of learning in our classrooms. If we do not adopt television on this basis, then we are likely to wake up one morning and find that the taxpayers have found a better and more efficient way of saving on building space and doubling up on teachers. Double sessions, the year-round school, alternating sessions are all under consideration. These are less expensive than adopting television. It is true that some economies might be made in school programs eventually when television is in full operation; until then, we must want it with all our hearts for what it will do for the quality of teaching and learning in our classrooms and not because it is a way a community has found to escape its responsibility for providing better salaries for teachers and voting bond issues for schools. America has the money for a good educational system, with television as a vital part. I, for one, am not willing to sell one at the expense of the other!

Last Chance: FM

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per cent; and popular music, by 65 per cent. Professional training in the technical and nontechnical aspects of radio was offered, in about half of the institutions listing this objective, through a combination of on-the-job training in the radio station and classroom instruction. In the other half, the training was carried on either through on-the-job training or in the classroom. The kinds of training mentioned most frequently as being offered were announcing, engineering, board operation, continuity and copy writing, program production, and programming.

The question of where the stations fitted into the organizational structure of their institutions produced a variety of answers. In half of the institutions, the stations operated more or less independently. In the other half, administrative control was exercised by radio-TV departments, speech departments, audio-visual services, departments of instruction, or extension divisions.

The survey showed little agreement among the stations as to how policies and objectives were established. In 35 per cent of the institutions, these matters were determined by a faculty and/or student board; in 31 per cent, by the station manager; and in 29 per cent, by the administration of the institution. Other policy-making groups mentioned were station staffs, department administrations, and faculty advisors. In 38 per cent of the institutions, objectives and policies were established by various combinations of the groups and persons mentioned above.

As might be expected, the survey disclosed wide variation in the amount of educational FM station budgets. Of the eighty-four stations which provided this information, seven reported having no budget at all! The remainder listed budgets raging from $300 to $137,000. Six stations had budgets of $100,000 or more. Although the average was slightly over $23,000, the median was $4,000. As a group, university stations reported the highest budgets; college stations, the lowest. The greatest variation in budget figures was found in the public school stations. Incidentally, 38 per cent of all institutions responding to the survey indicated that the budgets of their stations had been increased in the preceeding year. None reported a decrease.

Personnel figures displayed almost as much variation as budget figures. In 32 per cent of the institutions, the station had *NO* full-time employees; in 25 per cent, there was only one full-time employee. At the other end of the

scale, one station employed thirty-four full-time personnel. The fact that 94 per cent of the institutions used student help in their stations undoubtedly accounts for the lack of full-time employees. Another interesting discovery was that station managers at 83 per cent of the institutions held one or more positions in addition to their duties at the radio station. Some of these extra responsibilities included teaching, directing a radio-TV, speech, or audio-visual department, handling public relations, serving as principal, librarian, or coordinator of veterans' affairs. It would thus appear that in only a few institutions was the job of station manager considered a full-time position. Noteworthy in this connection was the fact that 54 per cent of the stations were on the air from 30 to 70 hours a week, and 12 per cent, from 70 to 118 hours a week.

What are the problems confronting an educational FM station? The survey found them to be, in order of the frequency with which they were mentioned: personnel, budget, technical problems, programming, lack of audience, and promotion. In regard to personnel, the most frequent complaints concerned a lack of sufficient staff, a lack of qualified personnel, and demands on the time of staff members for other duties. This problem, of course, is closely related to the next problem — insufficient budget. The seriousness of these two problems seemed to be borne out by the personnel and budget figures reported in the survey. The third problem — described in such terms as "lack of adequate equipment," "lack of proper equipment maintenance," and "limited broadcasting range" — hinges, in turn, on the problems of limited personnel and limited budgets. Rated as equal in importance to technical problems were the difficulties encountered in programming — the obtaining or preparing of programs of the proper types and in sufficient quantities, the maintaining of high program standards, and the scheduling of in-school programs to correspond with classroom schedules. With the exception of the public school stations, another problem which was mentioned concerned the limited size of the FM audience. Although educational stations do not seek the so-called "mass" audience, the number of potential listeners is limited by the relatively small number of FM receivers in use. This figure has increased, however, from an estimated 9,390,000 in 1954 to an estimated 15,000,000 in 1959. The Electronic Industries Association calculates 1958 FM receiver production at 740,000, plus an estimated 250,000 imports. A final problem mentioned in the questionnaires was finding the time, personnel, and funds to carry on station and program promotion.

The results of the survey, plus my own study of educational FM, have led me to several conclusions: (1) although the number of stations has grown to 164 in the eighteen years since the first station was established in 1941, educational FM has not been and is

not now being utilized to its fullest potential; (2) educational FM's record of accomplishment ranges from the well-planned and carefully directed efforts of a few stations to the well-intended but quixotic approach of many others; (3) if educational FM stations are to be a constructive and imaginative force for the advancement of education, the dissemination of information, and the offering of cultural opportunities, they must be adequately financed, professionally staffed, and properly equipped; (4) unless more educators recognize the potential of FM to help achieve the goals of education and make plans *now* to use the channels reserved for this purpose, the demand for these frequencies by other interests may turn education's "last chance" in radio into an idle dream.

Leased Time

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ter is in great demand for use on commercial stations as well as for projection to groups of teachers. Requests have been received for this series from Alaska, Utrecht in the Netherlands, and a number of states.

The Department's Division of Educational Communications, in formulating the Regents Educational Television Project, used the following guide posts:

1. To the maximum extent, instruction by television should be institutionally connected. Broadcasts should be appropriate for use in regular classes in existing schools. Thus, content for elementary and secondary school subjects will be selected from state syllabuses.

2. In so far as possible, television lessons should bring to the classroom situations and experiences not otherwise available in all schools.

3. In the scheduling of lessons, the importance of *stability* (which will make it possible for teachers to plan ahead in the use fo telecasts) and *flexibility* (which will make it possible to accommodate important events and opportunities as they occur) is recognized.

4. A continuing program of evaluation is to be maintained.

5. The State Education Department regards its function primarily as a programming authority, not as a program producer. The Department, under the direction of the Regents, will be chiefly responsible for the approval and scheduling of telecasts, for supervising their quality, and for maintaining a balance in the subjects and populations served. The Department will call upon many agencies to be creators.

After formulating its plans, the

Department next faced the problem of selecting a broadcast facility in New York City. The selection involved making a choice among three possibilities: procuring its own station by activating its UHF channel, buying a VHF station, or leasing facilities from a commercial station. It decided, because of the financial advantages, on the latter, and entered into an agreement with Station WPIX for the use of all broadcast facilities eight hours a day, five days a week, from September 22, 1958, through May 29, 1959. Station WPIX was to furnish all operating personnel. The Department was to furnish instruction, talent and programming, and directing personnel. (It should be noted here that the cost of leasing and operating Channel 11 eight hours a day is approximately a tenth of a penny for each dollar of state aid paid to schools in this viewing area.)

The Education Department added the following persons to its Division of Educational Communications: James F. Macandrew, formerly Director of Broadcasting, WNYE, New York City Board of Education; Producer-directors, Edward King, formerly with National Broadcasting Company and the Metropolitan Educational Television Association, Leon Polk, formerly WCBS Director, and Garry Simpson, formerly of NBC and producer of WIDE, WIDE WORLD; and Assistant Producers Margery Stern, Gail F. Glavin, and Ellen Kelly.

Teachers were sought through local Boards of Education. The Department entered into contractual arrangements with Boards of Education in the viewing area to furnish teachers and to be responsible for teaching specific courses.

The teachers, twenty-two in all, were released half time from their regular teaching assignments, generally three days a week, for studio teaching. In a few special cases teachers were released from all school assignments in order to manage their studio work. Studio teachers serve during the school year without additional compensation.

The project will continue through the 1959-60 school year with a diversified program schedule designed essentially for elementary and secondary school viewing. The schedule contains lessons which can be used in one of four styles of utilization:

1. those programs not associated with a specific course structure, but intended as an "extra-class" experience. The program, *History of the American Film*, which will attempt to bring the value of a great museum into a school room, illustrates this concept. Such programs may be used in a formal manner or used by students for extending learning. The choice is a local one.

2. those programs which are well-defined, well-planned, deliberate experiments in team teaching, as for example *Physics*. Here,

the classroom teacher has full responsibility for the progress of his students, but is aided three days a week by the knowlege and skills of the studio teacher in a unique, unparalleled fashion.

3. those programs which are planned for "total" teaching, such as *Conversational Spanish*. In such courses it is not necessary for the classroom teacher to be a subject matter specialist, because the studio teacher has the responsibility for guiding the pupil's learning.

4. those programs which are planned for direct teaching, such as *Science* for the elementary grades. These courses make it possible for children to receive well-designed and well-presented lessons by a subject matter specialist. The classroom teacher, who may not be such a specialist, will be able to assist with the stimulation and guidance of her pupils before and after television lessons.

The Division this summer intends to hold workshops, plan operational aspects, and prepare better study guides. All of this should stimulate greater activity and utilization at the classroom level.

The project has the largest market in the worlld from which to draw a viewing audience. There are nearly as many television sets in the Channel 11 viewing area alone as there are in all other markets in the nation having educational television stations. The Channel 11 signal reaches 4,700,000 sets in 44 counties of four states — and audience of 16½ million people. Included within this area are an estimated 2,000 New York State schools* or 60% of the public school students in the state.

Since last fall, the project has progressed rapidly and surely. Nevertheless, its growth seems slight when one realizes the tremendous size of the potential audience within the Channel 11 viewing area. Here are approximately 60,000 New York State classrooms, the great majority of which have yet to be reached. It is an awesome goal toward which the project is steadily moving.

Several weeks ago 40 million viewers of *C. B. S.'s I've Got a Secret* watched sixth grade pupils play tunes on their tonettes and song flutes. The children's secret, which the panel of noted entertainment-world personalities failed to guess, was that they had learned to play the instruments by viewing television classes Mondays, 1:30 to 1:50, over Channel 11.

Such is the impact of a very small portion of the Regents Educational Television Project in New York. The impact of the program as a whole, as its record shows, is an even more impressive one.

And it's no secret.

*This figure would be doubled if we were to include those public schools in other states which can receive Channel 11's sound.

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